

FLIGHT

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AND AIRSHIPS

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DIARY OF CURRENT AND FORTHCOMING EVENTS

Club Secretaries and others desirous of announcing the dates of important fixtures are invited to send particulars for inclusion in this list:—

| | |
|--------------|--|
| 1931 | |
| April 4. | Opening of Surrey Ae.C., Gatwick Aerodrome. |
| April 6. | Air Pageant, Wallingford Aerodrome. |
| April 7. | Air League Children's Fete, Hanworth Air Park. |
| April 11. | British Schools' Aviation Day, Hedon Aerodrome, Hull. |
| April 11. | W.R.A.F. Reunion Dinner, Florence Restaurant. |
| April 11-19. | National Aircraft Show, Detroit, U.S.A. |
| April 12. | Flying Meeting, Yorks. Ae.C., Sherburn-in-Elmet. |
| April 13. | "The Present Position in Aeronautics." Howard Lecture by Dr. N. A. V. Piercy, before R.Soc. of Arts |
| April 16. | "Aircraft Noise." Lecture, by Dr. A. H. Davis, before R.Ae.S. |
| April 18. | Air Rally, Aston Clinton, Bucks. |
| April 18. | No. 55 Sqdn. R.A.F. Reunion Dinner, Park Lane Hotel. |
| April 20. | "The Present Position in Aeronautics." Howard Lecture, by Dr. N. A. V. Piercy, before R. Soc. of Arts. |
| April 22. | Air League Annual Dinner, at Dorchester House, Park Lane. |
| April 25. | Sailplane Club's Dance, Suffolk Galleries. |
| April 27. | Closing date of British Empire Trade Exhibition, Buenos Aires. |
| April 27. | "The Present Position in Aeronautics." Howard Lecture, by Dr. N. A. V. Piercy, before R. Soc. of Arts. |
| April 30. | "Aerodynamics of Sails." Lecture, by Dr. M. Curry, before R.Ae.S. |
| May 3. | Flying Meeting, Southern Ae.C., Shoreham. |
| May 9. | Flying Meeting, Bridgend, Glam. |
| May 14. | "Metal-Clad Airship." Lecture, by C. Fritzsche, before R.Ae.S. |
| May 15-31. | Stockholm Aero Show. |
| May 23. | Start of Whitsun Continental Cruise, Heston. |
| May 25-26. | Northamptonshire Ae.C. Flying Meeting at Sywell. |
| May 30. | London-Newcastle Air Race, for "Newcastle Evening World" Trophy. |
| May 30. | Newcastle-Heston Air Race. |

EDITORIAL COMMENT



THE Report of the Court of Inquiry held by Sir John Simon into the cause of the terrible disaster to the airship R101 has at last been published. It is a most admirable piece of work. It covers the whole field, and recounts, so far as a first examination enables us to judge, practically every fact and circumstance which can have any bearing on the disaster. It is written in a fine literary style which makes it intensely interesting to read; and it would not be rash to prophesy that it will rival the report on India by another Simon Commission as a "best seller." The evidence is collected and arranged in the masterly judicial style which we associate with the work of Sir John, and as a result we can feel an assurance that the main cause of the catastrophe has been discovered.

No doubt can remain, after studying the Report, that R101 was brought down to earth by a loss of gas. Other circumstances contributed to the disaster. Had the weather been less stormy, the heavy condition of the airship might have been realised in time to take steps which would have averted the accident. Had the crisis not occurred just after the watch had been changed, again something might have been done which would have kept the ship from striking the ground. But the main conclusion to be drawn is that it was an abnormal and unprecedented loss of gas which caused the airship to crash to earth, and, had that loss not occurred, she might well have weathered the storm and reached the fine weather which awaited her in the Mediterranean.

The Report, quite rightly, deals very tenderly with the reputations of those who lost their lives. Had anyone been clearly culpable, it might have been necessary for the sake of posterity, to point that fact out clearly. But Lord Thomson insisted again and again that the experts in charge of the ship must run no risks on account of his desire to make the trip within certain dates. That clears him of blame. Colmore and Scott were men whose caution and whose almost meticulous desire to omit no point which could make for safety were beyond all question. They believed that the journey could be undertaken

without risk, on the weather forecast which had been given to them, and if they thought it safe to start, naturally no one else would feel any qualms.

Truly we have learnt wisdom after the event (a notoriously easy task) and we know now that R101 ought not to have started for India when she did. The trial flights had been cut short. The airship had had no full speed trials since the extra bay had been inserted. She had, it is true, ridden out a tremendous gale at the head of the tower, but she had not met really bad weather in flight. It was not unreasonable to conclude that the greater test included the lesser, and that a ship which could stand up to a gust of 80 m.p.h. at the tower would not be worried by a wind of 50 m.p.h. in free air.

But, as Squadron Leader Booth expressed it, a psychological effect was produced by the imminence of the Imperial Conference. It seems almost certain that Lord Thomson's eagerness to make the flight weighed more with the experts than his repeated instructions that the experts must not be influenced by that desire. The experts thought that there was no reason why the journey should not be undertaken; though, had there been no Imperial Conference looming ahead, they would probably have insisted on further trial flights. A fatal loss of gas after six hours' flying was evidently the last thing which they anticipated; and when we look back, as the Report urges us to do, to the conditions before the start, we must agree that this did not seem at all a probable contingency.

The Court naturally cannot reconstruct the exact history of the loss of gas, or discover precisely the cause for it. It came out in evidence that R101 normally lost much more gas than was the case with the "Graf Zeppelin." On the other hand, her normal loss of gas was considerably less than that of R100, which had safely flown to Canada and back, and had survived much worse atmospheric conditions than were actually met on the last flight of R101. The cause for the unusually great loss of gas during the two Hendon flights was believed to have been removed, and the belief was certainly justifiable. For some reason, at which we can only guess, R101 lost gas on her last flight to an unprecedented degree, and this proved to be her undoing. The Report puts forward more than one hypothesis, which may, either independently or in conjunction, have caused the disaster. The outer cover may have ripped (as it had done once before when the ship was at the tower) and the wind, getting inside, may have buffeted the gas bags and caused them to rip. Flapping fabric of the outer cover may have caused the valves to "chatter" and let out gas. The unusual rolling of the ship may also have affected the valves. These are all speculations. All that we can assert with confidence is that too much gas was lost, and that the circumstances of the gale and the change of watch prevented the officers in charge from realising this in time to take steps which might have saved the airship.

The report very carefully refrains from making any recommendation as to future airship policy. That is a question for the Cabinet. We cannot help

wondering whether the present Cabinet, harassed as it is said to be by Budget troubles and a trade depression, is actually in that calm and judicial frame of mind which fits it to take such a momentous decision. The temptation to get rid of a source of expenditure at a moment when the public is depressed by a tragedy and when practically no airship experts survive in Great Britain to bring forward arguments on the other side, may well prove very strong. Certainly, at the moment, the Cabinet would not be likely to incur any widespread unpopularity if it decided to cease further airship experiments in Great Britain.

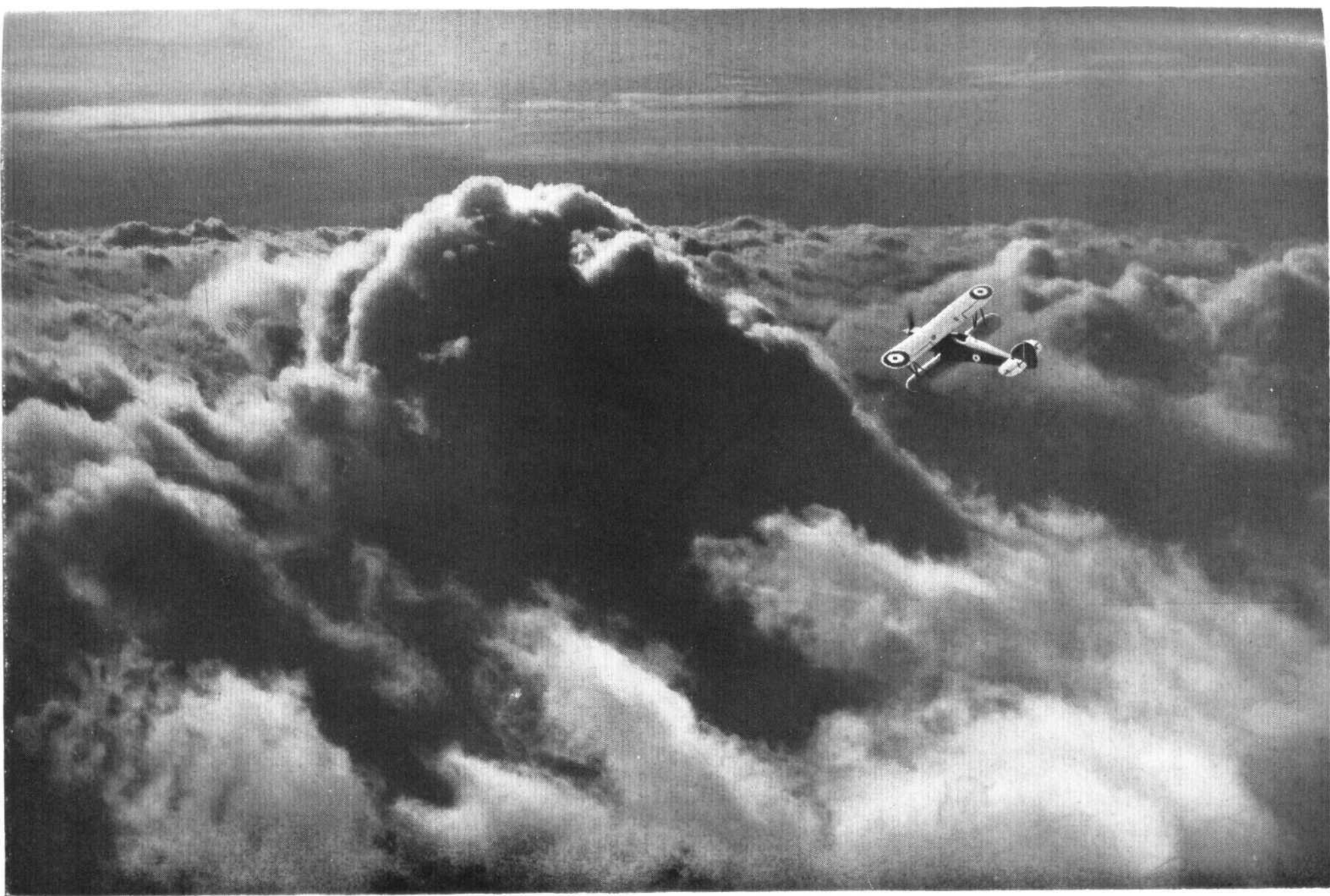
That, however, is not the spirit in which questions of such importance ought to be decided. It would, no doubt, be possible to design an airship in which the loss of gas would be no greater than it is in the "Graf Zeppelin." There is nothing in this report which would condemn an airship in which the gas was well protected. But the disaster has had one definite effect—namely, that everyone is agreed that the use of hydrogen involves too much risk. Scott was firmly convinced that safety would be assured if petrol were dispensed with, but he certainly thought of a ship in the air, not of a ship hitting the ground. Now, everyone, including the Americans and the Germans, has come to the conclusion that we must use helium or not go up in airships.

At the present price of helium, it seems impossible that a commercial airship inflated with that gas could pay its way. The cost of helium may, of course, be reduced to the point where the transatlantic traffic would make a helium airship a commercial possibility, but we cannot be sure that that will come about. For the present, at any rate, the commercial airship appears to be ruled out.

There remains the question of the naval airship. For patrolling the trade routes of the Empire—the Pacific and the Indian oceans—where no hostile aeroplane can get within attacking range, the airship offers great advantages. At present these oceans have to be patrolled by cruisers, and cruisers cost a great deal more, in capital expense and in maintenance, than even helium airships. The airship has a great advantage in length of vision and in speed of travel over the surface ship. For discovering raiders, like the *Emden* or the *Wolf*, airships would seem to be an invaluable economy. The Zeppelins did great service for the German Navy during the war, and our Admiralty was most reluctant to give up its demand for airships in 1919, when the economy campaign obliged their lordships to make a choice between airships and aeroplanes. They could not dispense with the latter, but they would have liked to have both.

From the national and Imperial point of view, it is of minor importance whether airships are a concern of the Admiralty or of the Air Ministry. The great point is that if they can do good service, the experiments ought not to be given up because of this disaster. We trust that the Cabinet will not overlook this aspect of the case when it comes to discuss future airship policy.





THE INTERCEPTOR FIGHTER : A Photographic Impression of a Hawker " Fury " with Rolls Royce engine above the clouds. (FLIGHT Photo.)

FLIGHT, APRIL 3, 1931

THE LOCKHEED "VEGA"

WE have referred in previous issues of FLIGHT to the Lockheed "Vega" monoplane, which Lieut.-Comdr. Glen Kidston, R.N., acquired recently, and this week we are able to give a short description of this very interesting machine. It is on this machine that Lt.-Comdr. Kidston left Netheravon on March 31 on a flight to Africa. He has already made several flights on the "Vega," one of which was a recent trip from Croydon to Le Bourget on February 21, when he accomplished the journey in 1 hr. 20 m.

The "Vega"—which is employed on certain American air mail and passenger routes, for which work it is designed—is a high-wing cabin monoplane, accommodating pilot and six passengers. The general clean lines of this machine, and streamlining of all parts, accompanied by the N.A.C.A. engine cowlings and wheel fairings, are, it is claimed, responsible for an extra 25 m.p.h. at top speed. A 450 h.p. Pratt and Whitney "Wasp" engine is fitted to the "Vega," and a 10-1 ratio supercharger is fitted.

The fuselage is a streamline shell, built entirely of riveted Alclad, a non-corrosive aluminium alloy of 0.028 in. thickness. Special Lockheed construction enables the fuselage to be made in such a manner as to avoid any internal crossbracing. The wing is constructed of two continuous box beam spruce spars, and is entirely covered on both sides with plywood in a manner which eliminates all internal drag bracing. The ailerons are of a modified Frise type, and are differentially controlled with internal mechanism.

The undercarriage is of chrome-molybdenum steel tubing, with streamline Dural tubing outside the steel. Three-point suspension is employed, and there is a minimum resistance to the air. Oleo shock struts are provided, and both Bendix wheels are fitted with Goodyear tyres, and wheel brakes operated from foot pedals in the cockpit. A tail wheel is also provided for ease in handling on the ground.



Three-quarter rear view of Lt.-Comdr. Glen Kidston's Lockheed "Vega," which is fitted with a 450-h.p. Pratt and Whitney "Wasp."

The cabin provides accommodation for six passengers by four folding armchairs, and a two-place fixed seat at the rear of the cabin. The seats are well cushioned and upholstered in hand-buffed leather, and fitted with safety belts. A lavatory compartment is divided off by a curtain screen. Ten curved plate-glass windows are provided, and the two rear windows can be opened by an automobile type cranking device. A retractable door-step is fitted to the cabin door on the left side. A set of navigation instruments is also fitted on the front bulkhead of the cabin. The wireless installation is located in the rear of the cabin baggage compartment. The cabin walls are packed with "Dry-Zero" light-weight sound proofing material, and the whole interior upholstered in Dupont Fabrikoid. The cabin can be heated from a hot-air duct on the exhaust system, and can be cooled for tropical use by means of air ducts led direct off the leading edge of the wing. Retractable steps on the left side of the fuselage give external access to the pilot's cockpit, and a sliding hatch over the pilot's head provides an emergency exit or entrance. Normal entry to the cockpit is obtained through the cabin, which is separated by a door serving the dual purpose of backrest to the pilot's seat.



The neat landing chassis (Goodyear tyres) and the N.A.C.A. cowling of the Lockheed "Vega."

The controls for elevator and ailerons are operated by a straight stick control column, and the rudder by pedals. The brake pedals are located immediately above the latter. On the left side of the cockpit are situated the tail plane stabiliser control, the Exide battery box, wobble fuel pump, gas cocks, and engine controls, including throttle, spark, mixture



This side view of the Lockheed "Vega" shows the exceptionally clean lines of this machine.

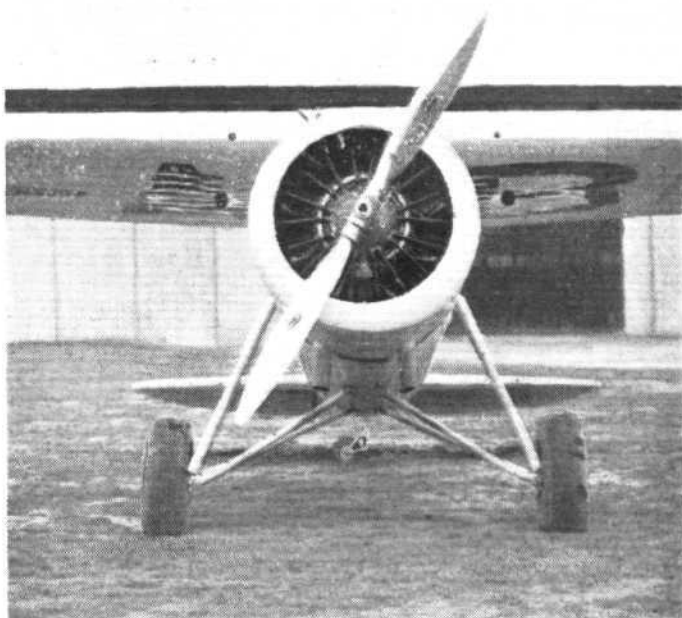
and supercharger levers. At the base of the throttle control quadrant is located the air blast control lever.

On the right of the cockpit are located the retractable landing lamps, actuating gear, the Byrd type radio wireless receiver, and automatic fire-extinguisher controls. In front, and above the pilot's feet, are the control boxes for cabin and cockpit heating. The altimeter instrument panel has been considered for good grouping of essential navigation instruments in front of the pilot's vision, the lesser important instruments being placed on each flank. The whole instrument panel is illuminated for night flying by means of the U.S. Army indirect lighting system. The following navigation instruments are fitted on the front panel: engine rev. counter, earth indicator compass, Pioneer turn and bank indicator, Sperry artificial horizon, Paulin level flight indicator, rate of climb indicator, air speed indicator, clock, fuel gauges, pressure gauges, altimeter, temperature gauges, voltmeter, ammeter, cylinder head and base thermo-couple, and supercharger pressure U tube.

The "Wasp" engine is started by means of an Eclipse starter, which is supplied by current from an Exide 12-16 volt battery. This battery is charged from a power-driven Aladdin duplex generator. Retracting land lights are fitted in the wings with 200-c.p. bulbs, giving a large arc beam to illuminate the ground when landing. These lamps are flush with the wing surface when in retracted position. Two dome cabin lamps are fitted in the passengers' compartment, and wing tip and tail navigation lights are also fitted.

The wireless equipment consists of Heintz & Kaufmann B.L. transmitter used in conjunction with the Byrd type receiver. This set is identical with that used by Admiral Byrd on his South Polar flight. The longest two-way communication record between aircraft and the ground was established with this equipment, when direct communication was maintained and messages exchanged between the 'plane "Floyd Bennet" and the station of the *New York Times* at New York, while the "Floyd Bennet" was flying at 3,000 ft. at the South Pole.

Fuel tanks are situated in the wing, there being five petrol tanks giving a total capacity of 229 gallons, and a 24-gallon oil tank fitted under the pilot's seat.



Front view of the Lockheed "Vega" showing the landing chassis and "Wasp" engine.

The engine is fitted with a Hamilton standard steel adjustable blade airscrew, fitted with a $20\frac{1}{2}^\circ$ setting.

The principal characteristics of the "Vega" are as follow:—Span, 41 ft.; length, 27 ft. 3 in.; height, 8 ft. 6 in.; wing area, 275 sq. ft.; wheel track, 8 ft.; weight empty, 3,012 lb.; wing loading, 16.36 lb./sq. ft.; power loading, 10.71 lb./h.p.; high speed, 185 m.p.h.; cruising speed, 150 m.p.h.; landing speed, 61 m.p.h.; cruising range, 1,550 miles; service ceiling, 19,750 ft.

THE ROYAL AERO CLUB OF THE UNITED KINGDOM

OFFICIAL NOTICES TO MEMBERS

Report of the Annual General Meeting, held on Wednesday, March 25, 1931, Lt.-Col. M. O'Gorman in the chair.

Election of President and Vice-Presidents.—The following have been elected: *President*, The Duke of Atholl. *Vice-Presidents*, The Duke of Sutherland and Lord Wakefield of Hythe.

Committee Ballot.—The result of the ballot for the nine vacancies on the club committee was as follows:—

| No. of Votes | Name. |
|--------------|---|
| 234 | Comm. James Bird, O.B.E. |
| 179 | Lt.-Col. M. O. Darby, O.B.E. |
| 185 | Brig.-Gen. Sir Capel Holden, K.C.B., F.R.S. |
| 197* | Capt. A. G. Lamplugh. |
| 261* | Air Vice-Marshal C. A. H. Longcroft, C.B., C.M.G., D.S.O., A.F.C. |
| 276 | Lt.-Col. Sir Francis K. McClean, A.F.C. |
| 242 | F. Handley Page, C.B.E. |
| 268 | The Rt. Hon. Sir Philip A. G. D. Sassoon, Bart., P.C., G.B.E., C.M.G., M.P. |
| 174 | Capt. C. B. Wilson, M.C. |

* New Members of the Committee.

CHAIRMAN'S REMARKS.

Membership.—The Membership of the Club has been maintained, but it has not increased to any marked extent.

We hope, however, that when we have a Club House, more in keeping with the position of the Club, that a much larger number of those interested in aviation will be attracted to the Club, and this question will be discussed later.

Club's Activities.—The activities of the Club during the past year have centred, as before, on the sporting and touring side of aviation, but I do not intend to give you details of everything that has been done. I would, however, like to refer to the great progress in private flying which is indicated by the number of Aviators' Certificates and Customs Carnets issued by the Club during the year.

The number of Certificates granted in 1929 was 453. Last year, the number was 738, an increase of 285.

The number of Customs Carnets issued in 1929 was 252. Last year, the number was 450, an increase of 198.

The Club has been steadily building up a centre of informa-

tion on all subjects of interest and importance to its members, particularly in regard to air touring.

The club is now taking steps in conjunction with the Fédération Aéronautique Internationale to minimise the formalities, which now have to be conformed with, in connection with travelling by air through foreign countries. These questions involve great difficulties on account of having to deal with so many foreign governments.

General Council of Associated Light Aeroplane Clubs.—There are 18 light aeroplane clubs associated with the Royal Aero Club and forming the General Council of Associated Light Aeroplane Clubs. The work of this general council during the past year has proved of benefit both to us and to all the clubs. Exchange of information and views resulting in co-ordinated action has been very helpful and, where the Government has been approached, the advantage of a full discussion of all points of view has helped all interests.

Benevolent Work.—During the year the Flying Services Fund of the Royal Aero Club has distributed in grants and allowances to the dependents of deceased airmen £450. Included in this sum are grants towards the education of children of the deceased airmen. This fund was established in 1914 and since that date has distributed approximately £22,000 in grants and allowances.

Obituary.—The Club and aviation generally has suffered very much by the loss of Lord Thomson, Air Vice-Marshal Sir Sefton Brancker, Air Commodore C. R. Samson, Mr. G. B. Cockburn.

To fill the vacancy on the Committee caused by the death of Sir Sefton Brancker, the Club has been fortunate in having the services of Mr. Lindsay Everard, M.P., who has done so much for the cause of aviation in Leicestershire and also in the House of Commons.

The vacancy in the case of the late Air Commodore Samson has been filled by the appointment of Commander James Bird, who is Chairman of the Schneider Committee, and who is giving much of his time in the organisation of this year's Contest.

Offices: THE ROYAL AERO CLUB
3, CLIFFORD STREET, LONDON, W.1.
H. E. PERRIN, Secretary.

R 101 SIMON INQUIRY REPORT

Disaster Due to Loss of Gas

THE report of the Court of Inquiry held by Sir John Simon, with Lieut.-Colonel Moore Brabazon and Professor Inglis as Assessors, was made public on Wednesday, April 1. Including appendices, the report consists of 129 printed octavo pages. It is divided into six parts or chapters, which deal with the earlier history of airships, the design and construction of R 101, the preliminary trials and reconstruction, the decision to start the Indian flight, the final journey, and a discussion of the causes of the disaster.

The report is unanimous, the two Assessors agreeing in every word with the Court. It is explained that the late publication is due to the time taken by the National Physical Laboratory to work out the course of the airship in the last few minutes of her flight in certain supposed conditions of loss of gas. The results of the calculations agree with the conclusions arrived at by the Court before the calculations were undertaken.

A passage from the final paragraph may be quoted here. The Court writes "Airship travel is still in its experimental stage. It is for others to determine whether the experiment should be further pursued. Our task has been limited to ascertaining, as far as is possible, the course and cause of a specific event."

We take the following extracts from Part VI:—

Discussion of Cause of Disaster

"In discussing the cause of the accident, one starts with a series of definitely ascertained facts. It is then possible to exclude, by a process of reasoning which appears conclusive, certain suggested explanations which need to be examined before they can be rejected. In the result, the analysis indicates, with some degree of confidence, the general nature of the true cause, though precise detail can never be attained, since no one who was in the control car has survived.

The following facts may be regarded as definitely established:—

(a) When the watch was changed at 2 a.m., there was no cause for immediate alarm known to those in charge of the navigation of the ship. The vessel must have been at least 1,000 ft. above the ground. The ground itself at this point is two to three hundred feet above sea level.

(b) At 2 a.m. the elevator wheel would be handed over to another height-coxswain.

(c) The weather was exceedingly bad. A strong wind was blowing from the S.W.; at that elevation its velocity might attain to 40 or 50 miles per hour. Moreover, the wind was not steady but was blowing in fierce gusts which would cause the nose of the vessel to move through a considerable angle above and below her horizontal line of flight. The height-coxswain would seek to limit or counteract this movement by use of the elevator.

(d) The ship in her trials had lost gas at an abnormal rate, certainly by the wearing of holes in the gasbags, and perhaps through her valves when she rolled.

(e) On the Indian journey she had rolled more than ever before, and had failed to keep height as the officer of the watch intended at an earlier period.

(f) If she was becoming increasingly heavy, this could be counteracted by suitable use of the elevator, but in very bumpy weather it would be more difficult to detect the rate and extent of the change.

(g) All her engines had been running satisfactorily at cruising speed for a considerable time right down to 2 a.m. This ought to give a speed through the air of a little over 50 knots. The course of the vessel was not directly in the teeth of the wind, and her speed over the ground might be expected to be 15 to 20 m.p.h.

(h) In these circumstances, at about five minutes past two, her nose dropped and she continued in this position for about 30 seconds, descending rapidly during that period of time. Her pitch downwards was sufficiently severe to wake up a man who was asleep in his bunk and to cause things to slide to the lower end of the smoke-room.

(i) The height-coxswain, by putting his elevator up, succeeded at length in bringing the ship again to about an even keel, but she remained in this position only for a few seconds.

(j) At about the time when it appeared that she was not further responding to up-elevator so as to recover height, the officer of the watch gave orders through the engine-room telegraph to reduce speed.

(k) About this moment the vessel got into a second steep dive, which lasted only for a few seconds before she struck the earth. The impact was not severe.

(l) The slowing down of the engines combined with the warning given by Chief Coxswain Hunt to Disley and the crew, is only consistent with the view having been taken that the vessel could not recover.

(m) Apart from reducing speed, the only other action that could be instantly taken to lighten the impact would be to drop such ballast as could be released from the control car. Releasing ballast in the nose of the ship which could not be automatically controlled was a further and slower operation, and yet orders were given to Church to do this.

(n) The fire did not break out till after the ship struck the ground."

The Report proceeds to discuss the various suggested causes of the crash. It definitely rejects the idea that the structure of the airship broke in the air, or that there was any failure of the control gear. It points out that the weather forecasts predicted a wind of 20 to 30 m.p.h. over northern France, whereas, quite unpredictably, a wind of 40 to 50 m.p.h. was met. It affirms the competence of the officers and crew. It finds that the longitudinal movement of the gas bags (due to the nature of the wiring system) was so limited as to be insufficient to account for serious loss of control, and then proceeds to discuss the loss of gas as follows.

Hypothesis of Loss of Gas

"The experts (both theoretical and practical) who gave evidence to the Court believe that the explanation of the disaster must be associated with a substantial loss of gas. In this connection certain subsidiary questions arise: (1) Was the loss of gas general throughout the length of the ship, or was it chiefly concentrated in the fore part? (2) Was the loss of gas a gradual process in consequence of which the ship became steadily heavier, or is it to be explained by a sudden catastrophe which would empty the contents of one or more of the forward gasbags immediately before the final dive: or, again, (3) Is the explanation a gradual loss of gas spread over a considerable interval, culminating in a further and catastrophic loss?

On the subject of the possibility of a gradual loss of gas, extremely important evidence was given to the Court by Prof. Bairstow. In the interval which occurred between the two periods when the Court sat, he worked out calculations which he subsequently explained to show that if the ship steadily lost gas, her increasing heaviness would nevertheless not call for more than a very slight adjustment of the elevator until she approached a critical condition. As she put her nose further up to counteract this increasing heaviness, her speed forward through the air would drop owing to increased "drag." A critical condition, beyond which steady flight ceases to be possible, would be reached if she ever became 13½ tons generally heavy, and earlier if the heaviness was due to deflation in the forward part of the ship. Yet Prof. Bairstow's calculations went to show that a very considerable loss of gas might take place before any large movement of the elevator would be required, and that in certain circumstances the loss of the last 2 or 3 tons of dynamic lift would produce an exceedingly rapid change in the available pitching moment.

The importance of this evidence is, of course, that it suggests the possibility of some such gradual deterioration having gone on through the wearing of holes in the gasbags or through gas escaping through the valves when the ship was rolling, without the full extent of the loss being promptly appreciated in the control car. On the other hand, the practical experts were disposed to think that in any event there was superimposed upon any slow change of condition, such as these calculations seem to make possible, a more definite and sudden further loss of gas from a forward gasbag or gasbags within a very short time of the disaster.

The chief difficulty in the way of supposing a prolonged and substantial leakage of gas is that such a condition of affairs would make itself known to the officer of the watch by the increasing angle of pitch needed to regain height. If serious leakage were suspected, one would expect that men going off duty would be told to stand by. The fact that no survivor knows anything of the men whose watch was ended being kept on duty militates against the hypothesis of

prolonged leakage, at any rate, if it were so pronounced as to be observed."

The Report then discusses the conclusions of Dr. Eckener, Squadron Leader Booth, Capt. Meager, and Squadron Leader Wann, which all practically agree in attributing the crash to loss of gas. It is pointed out that Squadron Leader Booth had given a written statement of his opinion before Dr. Eckener gave his evidence, and only slightly modified his opinion after hearing Dr. Eckener. The theory is also rejected that the officer on watch was afraid to raise his elevators for fear of forcing the tail of the ship on to the ground. The elevators are known to have been hard up at the moment of the crash. The Report then proceeds to its conclusions.

Conclusion as to Cause

The conclusion reached as to the cause of the disaster is as follows:—

The Three Phases

"The clearest way in which to explain the theory of the accident which the Court adopts is to regard the final movements of R 101 as consisting of three phases. In the *first phase* she drops her nose and descends, at a noticeably steep angle, for half a minute or thereabouts before, by use of up-elevator, she is brought back to an approximately horizontal position. The *second phase* then begins and continues for a short time, during which, in spite of her utmost efforts, she does not succeed in getting her nose appreciably up, but continues horizontal until she suddenly passes into a *third phase*, when she dives again and strikes the ground almost at once at an angle of at least 15 degrees.

In seeking the explanation of these successive movements, it is best first to direct attention to the second phase. Notwithstanding that the vessel had lost much height during the first phase, if she had been in a normal condition, there seems no reason why she should not have pointed her nose up again and regained altitude. From the fact that she failed to do so, it may be argued most conclusively that she was by then crippled beyond recovery, and the inference is that, though momentarily on an even keel, she was descending rapidly to earth. The action of Chief Coxswain Hunt in leaving the control room to warn the crew indicates that, in spite of his great experience, his assistance there was no longer of any use, and that those in charge knew there was nothing they could do which would prevent the ship from stranding. And the explanation of this would be provided if she had lost sufficient gas in the fore part of the ship. All that remained was to minimise the impact, and accordingly orders were given to stop the engines and release ballast. If this was the course of events, the ship would proceed to put her nose down again, enter upon her second dive and crash.

Now, working back to the first phase, the question is, what was the course of events which brought the ship down from, say, 1,200 ft., into this first long dive? Inasmuch as the reasoning above set out suggests, and, indeed, practically requires, that at the end of the first dive the vessel had lost a quantity of gas forward, it is natural to assume that this loss of gas had begun before the first phase was entered upon,

though it became greater as the vessel descended. If the fore part of the cover had become torn and wind entered the envelope, serious damage to gasbags would be most likely to occur with startling suddenness.

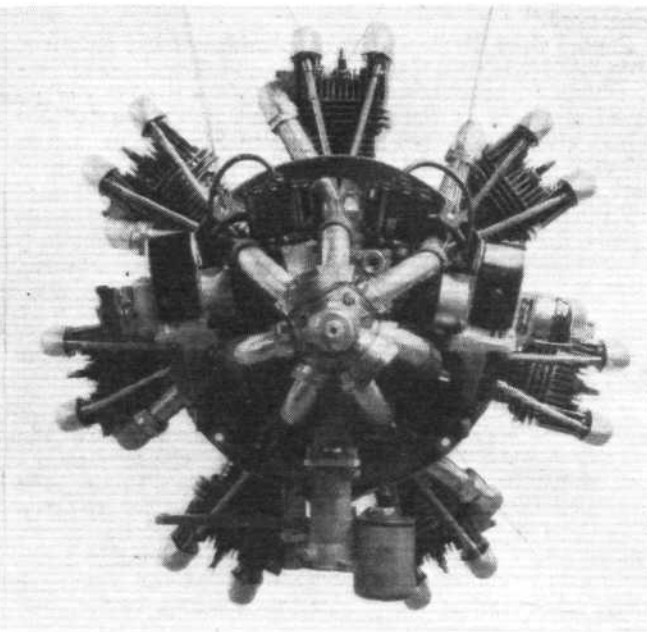
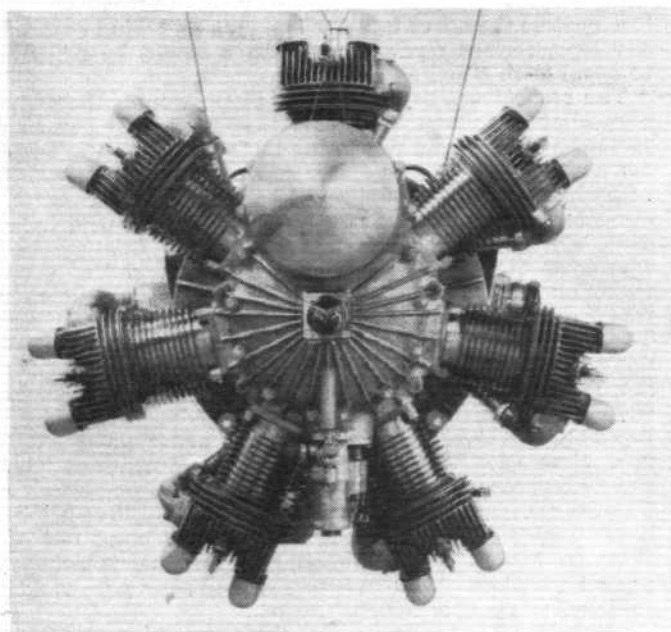
The reconstruction of the first phase would, therefore, be somewhat as follows:—Assume that the vessel had become somewhat heavy and was being buffeted in the wind so that her nose was sometimes above and sometimes below the line of horizontal flight. If she had been raised by a buffet, the elevator would be put down by the coxswain who had just come on duty to check and counteract this movement. The coxswain, not yet having got the "feel" of the ship thoroughly, might put his elevator rather more down than was necessary, or keep it down longer than was exactly right. The vessel's nose would drop. If when her nose is inclined downwards she gets a strong buffet or wind above her nose it will push her nose further down. If she was already heavy from loss of gas—especially if a rent had occurred in a gasbag which involved progressively rapid deflation—the descent is emphasised. The ship is now on her downward track in the first phase. The coxswain will begin to put his elevator up, and in order to get the ship out of her first dive has to put it up harder. None the less, she does not come out of her first dive as rapidly as she should, because she is losing more gas all the time. The slowness of her recovery would give sufficient warning of the crisis.

This gives the explanation of the course of events which is most consistent with the evidence, and at certain points is the only explanation which readily presents itself in accordance with the facts. At other points it is no doubt possible to assume certain variations in the data. For example, the final dive might have been assisted by another buffet of wind, and the exact relation between the angle of the elevator and the amount of gas lost can never be ascertained by any process of reconstruction.

How the vessel began to lose gas can never be definitely ascertained. The weather was exceptionally bad; the gasbags were hard up against padded projections, some of which may have begun to wear the fabric; the bumpiness of the wind and the pitching of the ship would intensify the strain; and earlier flights had indicated the possibility of leakage through chafing, or, if the vessel rolled through an unusually large angle, through intermittent opening of the gas valves. But it seems very probable that the more serious and sudden loss of gas which followed was connected with a specific misfortune such as the ripping of the fore part of the envelope. Something of this sort had happened on a previous occasion, and no amount of care could secure that it would never happen again. If a rip had begun in the fore part of the envelope it would tend to develop into a larger tear, which would both check the speed of the R 101 through the air and expose the gasbags to additional strain. This seems the most probable explanation of a further loss of gas in increasing quantity and suddenness. But whatever the precise circumstances may have been, the explanation that the disaster was caused by a substantial loss of gas in very bumpy weather holds the field. This is the unanimous view of all the three members of the Court of Inquiry."



A "FIERY" PERFORMANCE: Mr. Staniland demonstrating, in no uncertain manner, the terrific performance of the Fairey Firefly II at Hanworth before the Japanese Prince and Princess Takamatsu. (Flight Photo.)



Front and Rear Views of the Pobjoy "R" Engine.

A NEW POBJOY ENGINE

The Pobjoy "R" Type Engine has an overall diameter of 25½ in., develops 75-85 b.h.p., weighs 130 lb., including Hand Starter, and the Airscrew Speed is 1,400 r.p.m.

ALTHOUGH the Hooton Works of Pobjoy Air-motors, Ltd., were started as recently as October of last year, a batch of 50 "R" engines is already coming along. Developed from the original Pobjoy engine, the "R" type incorporates a number of improvements as compared with the prototype engine, as well as having been type-tested at a considerably higher horsepower.

The Pobjoy "R" engine is a seven-cylinder radial air-cooled, with propeller reduction gear. Remarkably low weight for its power is one of the outstanding features of this engine, and FLIGHT readers will be aware that the little Comper "Swift," when fitted with the original Pobjoy engine, has a very remarkable performance, particularly in the matter of climb. With the "R" type the performance should be even better. Add to the low weight of the engine the fact that a propeller reduction gear is fitted, which permits of running the airscrew at a speed as low as 1,400 r.p.m., and it will be realised that the possibilities of the Pobjoy engine are very considerable. The low weight and relatively high thrust horsepower which the gearing provides, enables the light 'plane designer to produce not only a single-seater with really high performance, but a two-seater which should be very economical to operate. The maximum thrust horsepower available for take-off should be ample even for a two-seater, and once at the desired height, it should be possible to throttle well down so as to "nurse" the engine, and yet cruise at quite a respectable speed for cross-country work.

The photographs show that in the new "R" type engine

the process of "cleaning up" has been applied to a considerable extent, and the "helmets" over the rockers should reduce, as far as drag is concerned, the already small diameter to the equivalent of about 2 ft. or so. The actual diameter is only 25½ in. over rocker fairings.

The weight of the engine, including hand starter, is only 130 lb., which corresponds to a power-weight ratio, on maximum power, of 1.53 lb./h.p.



Three-quarter rear view of the Pobjoy "R" Engine. In this view the exhaust collector ring is seen in place.

Annual General Meeting of the R.Ae.S.

On Monday, March 30, the Sixty-sixth Annual General Meeting of the Royal Aeronautical Society was held in the library of the Society at 7, Albemarle Street, W.1. Mr. C. R. Fairey, M.B.E., F.R.Ae.S., delivered the 66th annual report of the Council, and presented the balance sheets of Aerial Science, Ltd., and Aeronautical Trusts, Ltd. The full report of the Council has already been printed and issued in the Journal of the Royal Aeronautical Society for March, including a list of names of those on the Council and of the Sub-Committees. The honorary Auditors were re-elected, and the following alteration was made to rule 86: "One-half of the Council (excluding the President and immediate past-President, if a member of the Council) shall retire annually. The members who shall retire shall be

those longest in office, except as provided in rule 92. Retiring members of Council who have served for two terms in succession (four year) shall not be eligible for re-election until the next annual election, when they will be eligible." The President drew attention to the satisfactory state of the Society, and pointed out that, although the total membership had decreased by 1,302, this was entirely due to 1,500 members being lost, as for Service reasons the Halton branch had been dissolved. A new branch had been formed at Gloucester and Cheltenham under the Chairmanship of Mr. Folland, and the Honorary Secretaryship of Mr. L. W. Nethercott; furthermore, following the Secretary's visit to Canada, a new branch is in the process of formation at Montreal, and it is hoped that this example will be followed in other centres in Canada during the ensuing year.

AIRPORT NEWS

HESTON NOTES

HESTON Air Park has been the scene of considerable activity during the last few days, and numerous machines of various types have been arriving and departing for different parts of the world. Friday, March 27, saw the first signs of the Heston hustle, for three big flights got ready for business.

One of these was an aerial tour to Persia by the Hon. Mrs. E. Montague, widow of Mr. Edwin Montague, former Secretary of State for India. The tour is an interesting one, and to a certain extent unique, for it is to cover a large part of Soviet Russia, and up to now it has not been particularly easy to obtain permits to fly over that country—and much the same applies to Persia. Mrs. Montague, however, has been granted a special permit.

The tour, which will last about eight or nine weeks, is being carried out on a D.H. "Gipsy Moth," piloted by Mr. Rupert Belville, and the route to be followed will be via Munich, Vienna, Budapest, Belgrade, Sofia, Constantinople, Baghdad, Ispahan, Teheran, Tiflis, Moscow, Leningrad, and home by way of North Europe.

The first stage of the tour to Lymington was accomplished on Friday, a number of friends, including Mr. Duff Cooper, M.P., and Lady Diana Cooper, being present at Heston to see them off. The next day the flight was continued to Munich.

Another departure from Heston on Friday was also an interesting one. This consisted of a tour to the Balkans by two members of Parliament Lord Lymington and Capt. Balfour, in a Saro "Cutty Sark" amphibian, fitted with a "Gipsy II" engine. Flt.-Lt. Pope is acting as chief pilot, and navigator on this tour, and the machine was flown up from Cowes on Thursday, March 26.

The third event on Friday consisted of the arrival from Hooton of a Ford 5-AT Pullman monoplane—a three-engined machine of the type recently employed to carry the Prince



A Saro "Cutty Sark" ready to leave Heston on a tour towards Greece, with Lord Lymington, Capt. Balfour, and Flt.-Lt. Pope. (FLIGHT Photo)

of Wales and Prince George over certain sections of their South American Tour. Incidentally, its arrival caused a little alarm, for in attempting to land, it overshot the aerodrome and a disaster was narrowly averted owing to the port engine not opening out when the pilot tried to go round again. The left wing missed the hangars by inches, and everyone felt somewhat shaky as a result for some little time afterwards.

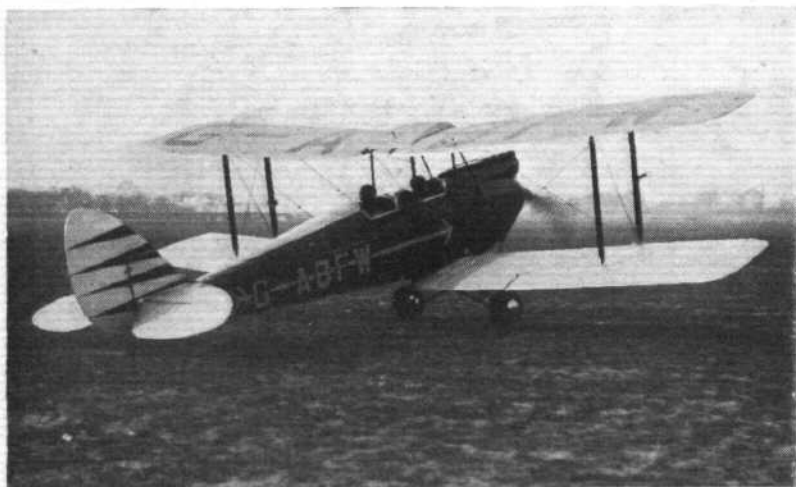
However, the Ford in question is to be used by Prince Bibesco, President of the Federation Aeronautica Internationale, for an extensive tour with the specific object of inspecting a number of important aerodromes of Europe and Asia.

A total distance of 30,000 km. (18,600 miles) will be covered and air ports as far distant as Bangkok will be visited. The flight consists of a series of hops, the longest of which is from Bushire to Karachi, about 960 miles, and the shortest from Beyrouth, about 62 miles.

After landing at Heston on Friday, the machine—which,



"COMTE DE LA VAULX": Princess Bibesco christens the Ford monoplane on which Prince Bibesco is making a tour of the aerodromes of Europe and Asia. (FLIGHT Photos)



EN ROUTE FOR PERSIA : Mrs. Edwin Montague sets out for Persia in her Gipsy Moth, piloted by Mr. Rupert Belville. On the right, some friends, including Lady Diana Cooper, bid the travellers good-bye. (FLIGHT Photos.)

by the way, had only reached Hooton from America the day before—was christened "Comte de la Vaulx," in tribute to the previous president of the F.A.I., by Princess Bibesco. It may also be of interest to note that this machine is the first to be registered with the dual civil-military markings, which in this case are, appropriately enough, CV-FAI.

Prince Bibesco's pilots, Maj. Burdului and ex-Lieut. Beller, are to receive instruction on the Ford aeroplane in England, where they will take delivery on the prince's behalf and later fly the machine to Paris. During the period of the tour, which commences at Paris, the aeroplane will be accompanied by one of the Ford Motor Co.'s English mechanics.

Another flight of note from Heston was a 36 hours' dash to the Riviera and back by Dr. Fleming, in order to see his son, who was lying ill at Hyeres, the doctor piloting one of Henly's Sports (Hermes II) Avians, G-AAXH.

Dr. and Mrs. Fleming left Heston last Saturday morning at 7.15 in very thick weather and flew down to Lympe. The first place they recognised after leaving Heston was Dover Harbour, and on arriving at Lympe they received a weather report, and proceeded to Le Bourget and thence to St. Roman; here they filled up with petrol and carried on to Marseilles. They took off from there as it was getting dusk and flew to Hyeres, where they landed at 6.30 p.m.

They left Hyeres the following morning at 7.50 a.m., landed at Marseilles, and then proceeded to Lyons, Dijon, Bourget, then to Lympe, where they landed at 6.20 p.m. They took off from Lympe on March 30 just after 8 a.m., and landed at Heston at 9 o'clock.

Finally, on March 31, there was a general exodus from Heston, when the start was made of an Easter Flying tour organised by Mr. Gordon Selfridge, jun., who will lead, in a Meteor twin-engined monoplane, a party in six other machines to Seville. The party includes the following: Flt.-Lt. MacIntosh, Mr. H. Jackaman, Mr. R. Denman, Mr. J. C. Parkes, Mr. Leslie Runciman, Mr. Whitney Straight and Flt.-Lt. Leech, while the machines comprise two Puss Moths, two Klemms, a Gipsy Moth, and a Bluebird.

It was planned on the first day to reach Dijon or Lyons, and thence to go on to Barcelona and Seville. The machines will afterwards go down the coast of Spain, but as one stage will involve a non-stop flight of nearly 400 miles, it may be advisable for the smaller craft to make a detour so that they may refuel at intermediate aerodromes. Last year, when 17 machines set out, a repairs tender was included among them. This tour will be accompanied by a mechanic, who will travel as passenger in one of the cabin aeroplanes.

CROYDON NOTES

THIS week, services were run to schedule, and many were duplicated—a very good omen for the summer. All companies are preparing for a busy Easter, and Air Union are offering a holiday trip to Paris and return for £6. This should prove very popular, as travellers by air experience none of the rush and bustle through Customs, and it is more comfortable and much quicker. The Luft Hansa Co. commenced their night air-mail service on Thursday, April 2.

Early Tuesday morning, Flying Officer Hawtry left for Baghdad on a Puss Moth G-ABBS. This machine originally belonged to H.R.H. The Prince of Wales. Flying Officer Hawtry did not get beyond St. Inglevert this day, owing to bad weather, but one presumes he is now well on the way to his destination.

Miss Pola Negri left here on Wednesday for Paris on the "Silver Wing" service.

The usual Aintree special for the Grand National of Imperial Airways left on Friday morning. This is very popular, and saves hours on the train journey.

There was a great deal of excitement among the staffs at the aerodrome until the result of the Irish Hospital Sweepstake was known. Better luck next time!

There seems to be a competition here lately for the smartest uniform. The Imperial Airways chauffeurs have been fitted

out with blue serge suits, with plated buttons, and perfectly-creased trousers. Surrey Flying Services have put their pilots and some of their staff into uniforms resembling Imperial Airways pilots and staff. One particularly well-known personage resembles a tailor's model judging by the fit and hang of things; however, it helps him to sell his joy-ride tickets.

We had a visit during the week from our old friend Capt. Wally Hope, wearing his usual beaming smile.

Joy-riding was again very popular over the week-end, and everyone was busy. Imperial Airways again had several large parties.

Croydon seems to get more popular every week judging by the number of visitors. The official guide is always in demand.

The Air Union Co. have two more Liore Oliviers on service, and more to come I understand.

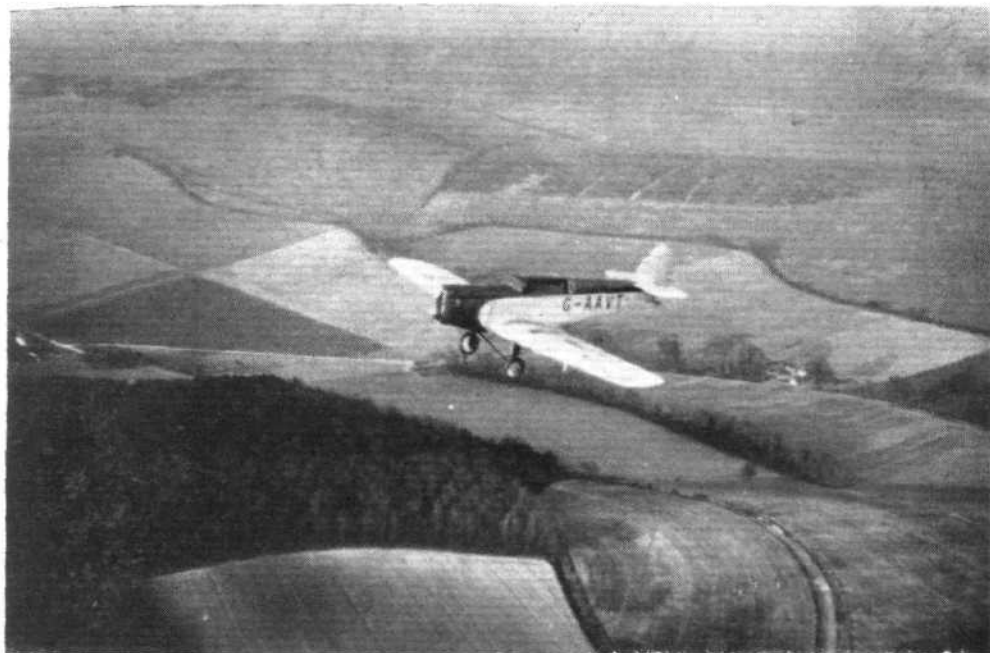
Major Clark, of Personal Flying Service, did a rush job to Paris and back during the week. The greater part of the return journey was completed after dark, as he did not leave Paris until 6.30 p.m., arriving at Croydon 8.30 p.m. He was flying the Desoutter.

The traffic figures for the week are:—Passengers, 535; freight, 45 tons.

P. B.



PRIVATE FLYING & CLUB NEWS



An aerial view of the Hendy 302 (Hermes II) flying over the Sussex Downs. This machine is the fastest cabin light aircraft available for private owners and cruises at 125 m.p.h. Built by the Hendy Aircraft Co., of Shoreham-by-Sea, Sussex, this is an extremely fascinating aircraft.

THE BROOKLANDS SCHOOL.—The school moved into its new and much larger buildings on Wednesday, March 25, and in spite of a relapse in the previous fine weather, the first production Hawker "Fury" ("Kestrel" engine) was test flown in a very spectacular manner on the same day. Four Vickers "Vespas" for the Irish Free State Air Force, also underwent flight tests, and on the following Saturday two of these were flown by Messrs. Stack and Summers to Ireland. The third school Moth (Gipsy I) will be put in commission this week, while six machines had their certificates of airworthiness renewed in readiness for the forthcoming season.

NORFOLK AND NORWICH AERO CLUB.—The annual dinner of the Norfolk and Norwich Aero Club held recently was one of the most successful hitherto organised. Mr. Russell Colman, Lord-Lieutenant of the County, honoured the club with his presence and made one of his usual witty speeches. The Lord Mayor was also present, as well as Col. Shelmerdine, Director of Civil Aviation, and Comdr. Perrin, Secretary of the Royal Aero Club. Miss Amy Johnson also made a short speech. The tennis and badminton courts are in great demand, so much so that members are advised to book their times a few days in advance.

THE SCOTTISH FLYING CLUB.—A total of 71 hr. 75 min. was put up by the Scottish Flying Club during February, although 18 days of the 28 were very bad from the point of view of weather. The series of lectures on engine and aircraft maintenance, meteorology, air navigation and general cross-country flying, organised by Mr. John M'Kean, have been very well attended, and these are held every Wednesday at 8 p.m. on the aerodrome. Next winter it is hoped to run this

series for a longer period. The Glasgow Corporation have entrusted the club with the organisation and control of a flying display day during the Civil Week from May 29 to June 6.

THE SURREY AERO CLUB.—The new club-house of the Surrey Aero Club will be opened with a small flying display followed by a dance in the evening, on Saturday, April 4. The club wishes it known that all private owners will be welcome and the more of them that come the better the secretary will be pleased.

LONDON AEROPLANE CLUB.—Members of the London Aeroplane Club should take notice that the club will be closed on Monday and Tuesday, April 6 and 7, but will be opening on the preceding Friday, Saturday and Sunday.

AVIATION IN ARGENTINA.—While flying in Argentina, the Prince of Wales has done much to advertise what an ideal country it is for those who use private aircraft much as they would use motor-cars. When speaking recently, His Royal Highness described the country as one vast aerodrome. He justified this remark by the ease with which he has landed at the doorsteps of a large number of ranch owners.

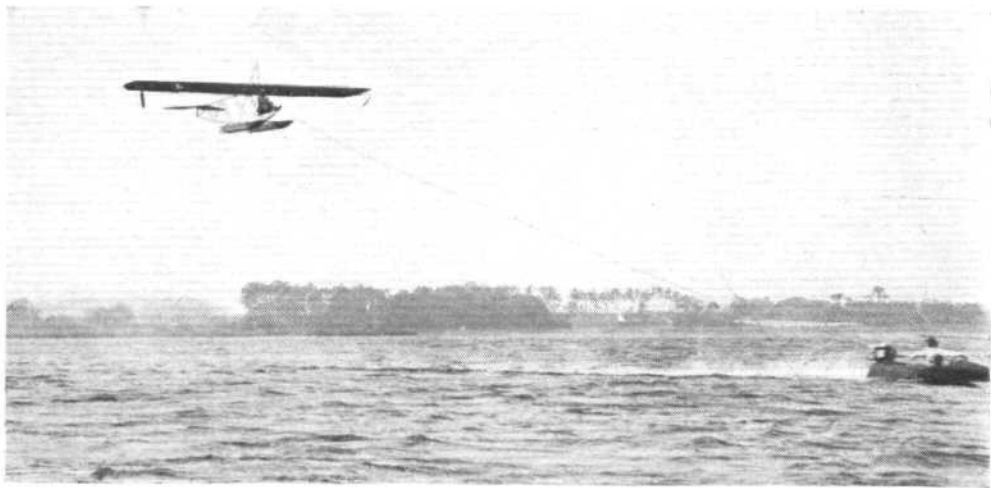
INDIAN CLUB SUBSIDIES.—The standing Finance Committee of the Legislative Assembly has accepted a proposal to continue the grant of financial assistance to the light aeroplane clubs for another year. These are the Karachi, Delhi, Calcutta and Bombay Clubs and the Aero club of India and Burma. Provision has, however, not been made for the two new clubs at Lahore and Madras. The only hope, therefore, for the future financial stability of these and any new flying clubs which may be formed would seem to be the Irwin Fund, on behalf of which influential appeals are being made.



The Civilian Coupé is the first two-seater to give side by side enclosed seating with a really good view, an excellent performance and low cost. Fitted with wheel brakes, this makes an admirable private owners' machine. (FLIGHT Photo.)

GLIDING

PORTSMOUTH AND SOUTHSEA Gliding Club: A south-west wind on the last few Sundays has made flights from the top of Portsdown Hill possible by members of the Portsmouth and Southsea Gliding Club. Some of these have been as long as 45 sec., in fact, on Sunday, March 22, only two flights were less than 30 sec. A new Zögling fuselage is being built and the forward portion faired in to form a nacelle. This will be used mainly for flights from the top of the hill, since it is of very much lighter construction. Members are reminded that subscriptions for the year are due on April 1 and anyone who wishes for information on the club should write to the Assistant Hon. Secretary, 14, Middle Street, Portsmouth.



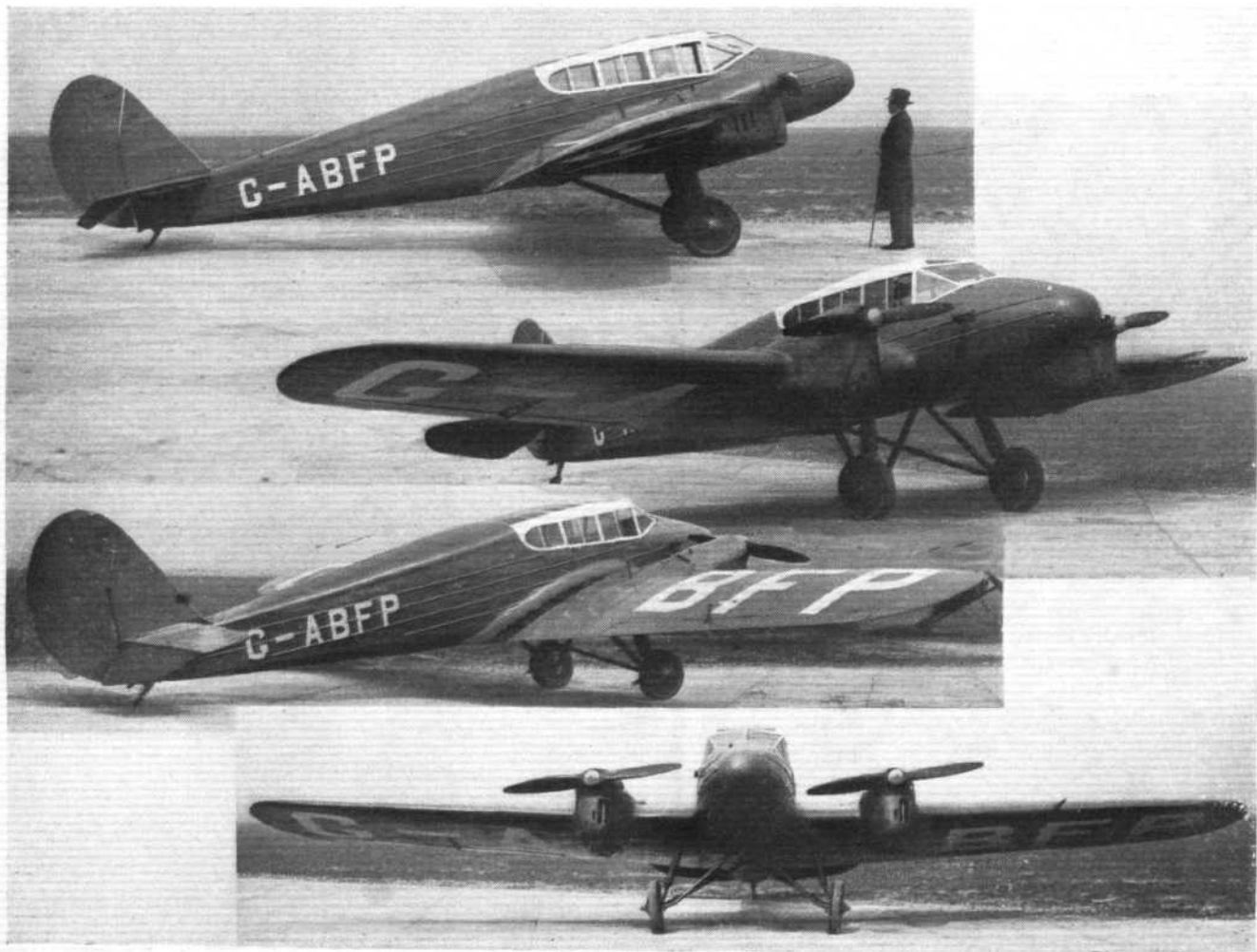
A Waco primary type glider being towed by an outboard motor-boat. A new form of providing thrills in America.

BADGES FOR GLIDER PILOTS.

—Glider pilots' badges are now issued by the British Gliding Association. These are the same as those issued by the Rhön-Rössitten Ges., except that the letter "G", the aircraft identification letter of Great Britain has been incorporated. The price of these is 3s., including postage and packing, to members of the association and affiliated clubs; and 3s. 6d. to others. Purchasers of a "B" badge will be credited with 1s. 6d. on returning their "A" badge, and purchasers of the "C" badge will be credited

with 1s. on returning the "B" badge. Orders, which must be accompanied by a remittance, should be sent to the Secretary, B.G.A., 44a, Dover Street, W.1.

THE ASSOCIATION OF NORTHERN GLIDING CLUBS.—The annual meeting of the A.N.G.C. was held at the Rawson Hotel, Rawson Square, Bradford, on Saturday, March 28, at 2.45 p.m.



THE METAL "METEOR": G-ABFP is the first of these, and belongs to Mr. Selfridge, Jun. With other machines from Heston the "Meteor" is making a tour to Spain during the Easter Holidays. (Flight Photos.)

AIR TRANSPORT

DEVELOPMENTS IN AUSTRALIA

AUSTRALIAN National Airways, the mail and transport company operated by Air Commodore Kingsford Smith and Mr. C. T. Ulm, is apparently continuing its steady and successful progress, and, according to reports, is considering increased activities in several directions in the near future.

For instance, two important proposals consist of a passenger and mail service between Melbourne and Launceston, Tasmania, and, secondly, a night service between Melbourne and Sydney. The question of an air service between Australia and Tasmania has been under consideration for some time, and there is little doubt that such a service would be a boon to the people of Tasmania. At present it takes about 18 hours to cross the more often than not rough waters separating the two islands by steamship, whereas an air service would occupy only about three or four hours.

It will be remembered that Matthews Aviation Pty., Ltd., has had such a service in view for some time past, and proposed to employ Saro amphibians for the purpose. Capt. G. C. Matthews has already a Saro "Cutty Sark," and has made an experimental flight across the Bass Strait in this machine, but while the "Cutty Sark" is certainly the right type of machine for the service, it is thought that a more powerful machine is desirable. It is reported, therefore, that Matthews Aviation is adopting the Saro "Cloud"—the larger three-engined version of the "Cutty Sark"—for the Bass Strait service.

The "Cloud," which has a cruising speed of about 100 m.p.h., can carry twelve passengers and two pilots, and would complete the journey between Melbourne and Hobart in about five hours, also, it would be capable of being able to ride out almost any sea. The first experimental flight, referred to above, was made last December, the first section of the flight from Melbourne to Wilson's Promontory was completed on December 13, but, owing to extremely unfavourable weather conditions it was considered inadvisable to attempt the flight across the Bass Strait. After four days' delay, however, the flight was continued to Launceston, which, in spite of a head wind, was reached in 3½ hours. Throughout the flight across the Bass Strait the chain of islands or rocks—Anser Group, Roodondo, Crocodile, Curtis Pyramid, Hummocky (off Flinders Island), Goose and Waterhouse—which it has been said once formed a land bridge between Tasmania and the mainland, were within reach practically all the time. While it is doubtful if many of these islands afford a landing place for landplanes, they would, nevertheless, offer shelter for seaplanes or amphibians should occasion arise.

From Launceston the journey was continued to Hobart, in 1½ hours.

Experimental flights between Melbourne and Launceston have also been carried out by Australian National Airways, Kingsford Smith himself piloting the first machine—the Avro 10 tri-motored monoplane *Southern Cloud*, which recently was lost on the Sydney-Melbourne service—with nine passengers on January 16. The journey took exactly

three hours, and during the next few weeks further flights in each direction were carried out. Whether or not the service is to be a regular one depends upon the support received.

As regards the A.N.A. scheme for a night service between Melbourne and Sydney, this is being held in abeyance for the time being, as it is hoped that Government assistance will be forthcoming. Organisation and plant for a night air service would be too costly for A.N.A. to tackle on their own.

The Tasmania service and the above night service, together with Guinea Airways' proposed seaplane service between Lae (New Guinea) and Brisbane, should they materialise, will considerably increase Australia's aerial activities, and the Commonwealth will be almost girdled by air lines.

Before concluding, we would refer to some interesting statistics regarding the operations of Australian National Airways for the twelve months January 1 to December 31, 1930, which we give in the accompanying table. We think our readers will agree that the figures are remarkable, especially in view of the fact that the company does not receive any Government subsidy.

AUSTRALIAN NATIONAL AIRWAYS—JAN. 1-DEC. 31, 1930

| Regular Service Flights Only—using Tri-motor Avro 10 Monoplanes fitted with Armstrong-Siddeley "Lynx" Engines | Sydney-Brisbane Service | Sydney-Melbourne Service | Total for 12 Months |
|---|-------------------------|--------------------------|---------------------|
| Flights scheduled | 736 | 428 | 1,164 |
| Flights completed | 735 | 427 | 1,162 |
| Percentage completed | 99.73 | 99.76 | 99.82 |
| Flights completed to schedule time | 717 | 403 | 1,120 |
| Percentage completed to schedule time | 97.41 | 94.16 | 96.22 |
| Flights not completed (mechanical failure) | Nil | Nil | Nil |
| Flights not completed (adverse weather) | 1 | 1 | 2 |
| Flights delayed (mechanical failure) | Nil | Nil | Nil |
| Flights delayed (adverse weather) | 18 | 24 | 42 |
| Single trips (Brisbane 500 miles) (Melbourne 475 miles) | 735 | 427 | 1,162 |
| Paying passengers carried | 4,794 | 1,278 | 6,072 |
| Aircraft miles flown | 372,000 | 202,150 | 574,150 |
| Engine miles flown | 916,000 | 606,450 | 1,522,450 |
| Passenger miles flown | 2,397,000 | 596,100 | 2,993,100 |
| Air mail letters carried (approx.) | 663,640 | 53,400 | 717,040 |
| Net weight of air mail carried (lb.) | 16,591 | 1,336 | 17,927 |
| Accidents involving injury to passengers or personnel | Nil | Nil | Nil |
| Average speed (m.p.h.) | 104 | 107.5 | — |



THE "CUTTY SARK" IN TASMANIA: The Matthews Aviation Saro "Cutty Sark" amphibian arriving at Hobart after a flight from Australia on December 18 last.

New Irish Aviation Company

IONA National Airways, Limited, the new Irish aviation company, which was mentioned in our "Companies Registered" notices recently, has for its main object, the thorough development of school and "joy" flying throughout the Irish Free State. Mr. Hugh Cahill, who started the Iona National Flying School last year, is one of the directors and the company will take over the machines, a Desoutter Mk II (inverted Gipsy) and a Gipsy Moth, and interests of the original enterprise. Mr. Cahill had hoped that negotiations with the Government would have resulted in

his aerodrome being at Collinstown, but as the Government are considering this site as a possible airport for Dublin, he has decided to obtain land near the city and establish a private aerodrome. More machines are to be acquired both for school and taxi-work and it is expected that Iona National Airways will be in full working order during the next two months. An interesting clause in the Articles of Association, states that the company has the right to enter into business with any other company, either in the Irish Free State or abroad, which means it will endeavour to arrange with an English organisation for an England-Ireland service.

FIRST AIR MAIL FROM ENGLAND TO AUSTRALIA.

London—Port Darwin in 15 Days.

ARRANGEMENTS have been completed between the Post Office, the Air Ministry, and Imperial Airways, for the immediate operation of two experimental return air-mail flights between England and Australia.

The first outward flight will leave the London air station, Croydon, on Saturday next, April 4, and will arrive at Port Darwin (Australia) 15 days later, on April 19. The time of a journey from England to Australia by the fastest surface transport is 28 days.

At Port Darwin the air-mail from England will be met by an aeroplane of the Australian "Qantas" Company, and flown on for delivery in Sydney and Melbourne.

Before a return air-mail leaves Australia, time will be allowed for those receiving letters by the outward service to answer them. Eight days after the arrival of the first machine at Port Darwin—that is to say, on April 27—a return flight will start from Port Darwin for England, reaching the London air-station on May 14.

A second outward-bound machine will leave England on April 25, reaching Australia on May 10, the second return flight from Australia to England leaving Port Darwin on May 17, and being due at the London air-station on May 31.

The inaugural Imperial Airways machine next Saturday, a 3-engined Armstrong-Siddeley, will ascend from the London air-station carrying not only this first Australian mail, but also the regular weekly air-mails for India and Central Africa.

This combined Empire air-mail will be carried across Europe to Athens, and then above the Mediterranean in a 3-engined Short-Jupiter flying-boat to Alexandria.

From Cairo the African mail will be flown southward to Mwanza in Tanganyika Territory, the temporary terminus of the African service, while the Indian and Australian mails will proceed eastward in a 3-engined De Havilland "Hercules" machine over existing stages via Bagdad and the Persian Gulf to Karachi and Delhi.

From Delhi will stretch the new route of the service to Australia, the inaugural mail being carried in a "Hercules" machine via Calcutta, Rangoon, Singapore, and the Dutch East Indies to Port Darwin, Australia, to effect a connection there with the waiting aeroplane of the "Qantas" Company.

The total distance of the route through from London to Port Darwin is 11,194 miles.

Now under review by the Governments concerned are proposals by Imperial Airways for a regular weekly air-mail between India and Australia, to link up with the existing weekly passenger and mail service between England and India. It is only 11 years since the pioneer flight between England and Australia was made by two Australian airmen, the late Sir Ross Smith and Sir Keith Smith, in a Vickers Rolls-Royce biplane, in 28 days; while it is now reckoned that when such an England-Australia service is in regular operation, it will be possible to carry air-mails from London to Port Darwin in not more than eleven or twelve days.

Civil Aviation in Switzerland

THE 1st of March witnessed the entry into force of the scheme for the centralisation of Swiss Air Traffic in the hands of the "Schweizerische Luftverkehrs-Aktiengesellschaft." This undertaking, which will be called the "Swissair" for short, has been formed by the amalgamation of the two principal air navigation companies in Switzerland, namely, the "Ad Astra-Aero Company" of Zurich, and the "Balair, S.A." of Basle, both of which have now ceased to exist, and whose fleet of aircraft and flying and ground organisation have passed into the hands of the new company. This change has placed Commercial Aviation in Switzerland on a sounder basis than hitherto, and is expected to have a beneficial effect on its development. Statistics published by the Federal Air

Office show that in 1930, civil aircraft in Switzerland flew 1,447,190 miles in 16,858 hours. The number of passengers carried totalled 45,756, while freight, mail, and luggage transport (the latter at paying rates) amounted to 818,630, 368,875 and 120,610 lbs. respectively. Regular air services claimed the bulk of the traffic, international lines accounting for 652,505 miles in 7,461 hours, 12,283 passengers, 512,528 lbs. of freight, 146,123 lbs. of mail, and 78,524 lbs. of luggage, and Swiss lines for 472,562 miles in 5,281 hours, 11,533 passengers, 308,744 lbs. of freight, 200,724 lbs. of mail, and 42,085 lbs. of luggage. The balance is distributed among the other branches of Civil Aviation, such as flying schools and flying clubs, private flying, aerial photography, occasional passenger flights, etc.

GROUP INSURANCE AT BLACKBURN'S

REMARKABLE plan for the protection of workers and their dependents has come into operation among employees of the Blackburn Aeroplane & Motor Co., Ltd., of Brough, East Yorkshire, and Leeds. As the result of the installation of a group insurance plan, the great majority of the company's employees are now insured for a minimum of £100, rising to £1,000 in the case of the higher-paid staff members.

The plan, as adopted, contains many benefits in addition to the life insurance, and is on a contributory basis, that is, the company and the members of the plan contribute in approximately equal ratio to its cost. All employees are eligible to join, and no medical examination is required. This is an important privilege, because in every considerable group there are some persons who would not be able to secure individual life insurance policies because of some perhaps unsuspected disability.

For works employees, the plan provides £100 of life insurance at a cost to the employee of only 3d. weekly, the balance of the cost being paid by the company. Staff employees are divided as to contributions and benefits into classes according to earnings, as in the schedule below. Both works and staff employees have total and permanent disability benefit, as well as the straight life insurance. This means that any member who becomes totally and permanently disabled, from any cause, anywhere contracted before age 60, will receive the amount of the life insurance in from 40 to 60 monthly instalments. For works employees this means 40 monthly instalments of £2 12s. 6d. each.

The following is the schedule for the staff members of the plan:—

SCHEDULE OF BENEFITS AND EMPLOYEES' CONTRIBUTIONS.

| Class | Annual Salary | Life Insurance | Total and Permanent Disability Benefit (Life Insurance in Monthly Instalments) | Employee's Weekly Contribution |
|-------|----------------|----------------|--|--------------------------------|
| A | £150 and under | £100 | £ s. d. 2 12 6 mthly. for 40 mths. | s. d. 0 3 |
| B | £151 to £250 | £200 | 3 12 0 " 60 " | 0 6 |
| C | £251 to £350 | £300 | 5 8 0 " 60 " | 0 9 |
| D | £351 to £450 | £400 | 7 4 0 " 60 " | 1 0 |
| E | £451 to £550 | £500 | 9 0 0 " 60 " | 1 3 |
| F | £551 to £650 | £600 | 10 16 0 " 60 " | 1 6 |
| G | £651 to £750 | £700 | 12 12 0 " 60 " | 1 9 |
| H | £751 to £850 | £800 | 14 8 0 " 60 " | 2 0 |
| J | £851 to £950 | £900 | 16 4 0 " 60 " | 2 3 |
| K | Over £950 | £1,000 | 18 0 0 " 60 " | 2 6 |

In case of death, from any cause, anywhere, while a member of the plan, the life insurance will be at once paid to the beneficiary designated by the insured person. A remarkable provision of the plan is the agreement of the Blackburn Co. to continue to pay the entire cost of the insurance for life for such employees as retire from active service with the company's consent. Thus, such retired workers will have nothing to pay, but their life insurance will continue in force until they die.

The administration of this interesting plan has been placed with the Metropolitan Life Insurance Co. of New York, which specialises in these group benefit plans, and has in

the neighbourhood of 150 of them already in force in this country. An unusual feature of the Blackburn plan is free nursing service. The insurance company provides a staff of highly-competent visiting nurses who will, in cases of illness or disability, call at the member's home, assist in carrying out the doctor's instructions, and give any possible aid. The nurses only call at the direct request of the member. In other plans, which have been longer in effect in this country, the visiting nurse service has proved an exceedingly well-appreciated feature.

This group insurance in no way supersedes or conflicts in any way with the Workmen's Compensation Act or any benefits payable under any of the National Insurance Acts, but is entirely in addition to them.

The insurance company further agrees that, in case any member leaves the service of the Blackburn Co. for any cause, he or she may apply for an individual life insurance policy, without medical examination, and at attained age and rate, for an amount equal to that of the group insurance plan, provided application for such a policy is made within 31 days. It is obvious that the benefits provided for members of this plan could not be secured for them individually for several times the cost given above. This is because the wholesale buying power of the employer has been utilised for the individual benefit of the employees, an achievement

made possible by the advance of actuarial science during the last few years.

The group insurance in this plan, which incidentally provides a total of nearly £175,000 in protection to the families of Blackburn employees, is exactly the same in principle as that in the plan of the Standard Oil Co. of New York, which was recently described in cable messages to this country. This plan covers 45,000 employees, and is also being administered by the Metropolitan Life Insurance Co.

It is generally known that people of this country, and especially the wage-earners, who are the backbone of the nation, are grievously under-insured. The average for all of Great Britain, including large policies, is only about £38. Thus, such plans as the one just adopted by the Blackburn Co., in co-operation with its associated employees, marks a very great step in advance. There is now in force in the world a total of approximately £2,000,000,000 in group insurance, practically every pound of which protects some family where the death of the breadwinner would mean tragedy. Its constantly increasing popularity in this country, therefore, means that families will be kept together which might otherwise have become scattered, children will be educated who would otherwise be thrown on an already crowded labour market, and the general well-being of the community increased and strengthened.

CORRESPONDENCE

[The Editor does not hold himself responsible for opinions expressed by correspondents. The names and addresses of the writers, not necessarily for publication, must in all cases accompany letters intended for insertion in these columns.]

OUR AIRSHIP POLICY

[2373] A firm believer in airships myself, I read with interest the recent letter in *FLIGHT* from P. D. B., and I fully agree with him that the performance of the "Graf Zeppelin" is sufficient proof that with sound design and operation, the lighter-than-air craft has enormous commercial possibilities. I think, however, that the present type of rigid design will not be the ultimate one; the weakest points appear to be in the gas-bag and outer cover. The all-metal hulled ship appears to offer the greatest hope of success, provided that sufficient strength combined with lightness can be attained. The problem of producing a gas-tight cover of such large dimensions and composed of such thin metal will no doubt be a matter of great difficulty. To my mind the method of ensuring a stiff outer cover by keeping the gas under slight pressure, as employed successfully on non-rigids, could be applied even more successfully on the metal-hulled ship and practically all trimming could be done by ballast and the use of the ballonnet alone, without the necessity for valving gas, a very wasteful and altogether undesirable proceeding. It would probably be necessary to incorporate some system of water recovery to keep the static trim reasonably constant on a long flight. If these features could be incorporated without undue increase of weight over present designs, it would be possible to use one filling of gas to last a considerable period and it might then be economically possible to use helium in place of hydrogen as an additional safeguard.

If the American experiments on metal-hulled ships show any positive results I think we should, in this country, experiment along these lines, building small ships at first and so gain operational experience. It does not appear to me impossible for a regular service to be operated in districts where bad visibility make aeroplane services unreliable and dangerous. We know that airships can operate and moor safely in or above fogs, and some such route as that between London and Manchester, for instance, which is so notorious to aeroplane pilots in the winter months, could be worked quite successfully as a commencement. Should success attend this experiment we could go by stages until an economic size of ship for really long distances is reached.

Sutton, Surrey.
Mar. 24, 1931.

G. E. WILLS.

THE POTTERS BAR AIRSHIP

[2374] On page 236 of your issue dated March 13 you have a paragraph reporting a German "Day of Remembrance" at Potters Bar, when wreaths were laid on the graves of the German airmen who lost their lives when a Zeppelin was shot down near that place in September, 1916. Your after-thought, however, in correcting that statement to say that it was a Schutte-Lanz airship, is in error. The Schutte-Lanz was shot down at Cuffley by Lt. W. Leefe Robinson, of No. 39 Squadron, R.F.C. The Potters Bar Zeppelin was destroyed by 2nd Lt. W. Tempest (of the same Squadron)

on October 1, 1916. Its number was L.31 and, although I was quite a young schoolboy at the time I can distinctly remember dashing outdoors to watch it fall, a terrible flaming mass, visible here at Croydon.

Confirmation of the above facts may be obtained from Captain Joseph Morris's book "The German Air Raids on Great Britain, 1914-1918," to which I am indebted for refreshing my memory as to the names and precise particulars.

Croydon, Surrey.

A. E. APIED.

March 24, 1931.

FASTER BRITISH MAIL PLANES

[2375] As an old R.A.F. pilot, I am very interested in reading all the aviation news from Great Britain through your excellent paper *FLIGHT*.

I am very pleased to see that the public in Great Britain are at last going to see some high speed flying over long distances by the Lockheed Vega at present in England.

As there exists in the U.S.A. a type of aircraft whose performance would permit a flight from Karachi to London in one day, landing seven times for refuelling, I think it might be good for British prestige in general if some British aircraft showed its paces on the route to the East.

It might be of interest to point out that 2,500 miles has already been accomplished in the U.S.A. in 12-25 hrs.; this distance almost corresponds to the 2,590 miles between Bagdad and London.

Like your correspondent, "B.P.," in the Croydon Weekly Notes, on February 27, I would ask a question: what commercial aeroplane has Great Britain which could fly from Karachi to London in one day?

Montreal, Que.,
Canada.

S. T. B. CRIPPS.

March 16, 1931.

AIR MAILS TO THE EAST

[2376] Your Editorial Comment deals with an extension to Rangoon, &c. Aberdonian brains have long dominated commercial and industrial Burma, and I doubt if they will see gain enough in the Imperial Air Mail to justify the expenditure of one bawbee. Letters from Bengal tell me the air mail is not worth using, the gain being only three days, and that, on occasions, has been converted into a loss. A train doing 60 m.p.h. for 24 hours is as speedy and more reliable than an aeroplane that does 120, and that sits in its nest all night. Also, in its effort to kill two birds at one shot, the Indian air mail diverges about as far as possible from its great circle route. The divergence will give it passengers and mail from equatorial Africa, but the Aberdonian in Rangoon has little connection with the Victoria Nyanza, and if he wanted a speedy one, would make it by Kenya radio.

A. J. RICHARDSON.

North Walsham.

March 27, 1931.

AIRISMS FROM THE FOUR WINDS

Another Attempt on the England-Capetown Record

LIEUT.-COMDR. GLEN KIDSTON and Lieut. Cathcart Jones, left Netheravon early on Tuesday morning, March 31, in the former's Lockheed "Vega" on an attempt to lower the existing record for the flight to the Cape. Comdr. Kidston is taking a Marconi wireless operator with him as far as Cairo where his place will be taken by a mechanic. The machine took off extremely well in spite of its heavy load, and wireless messages received in London during the morning showed him to be progressing well. Full details of the machine will be found on page 292.

New Zealand-Australia Flight

MR. F. C. CHICHESTER, the New Zealand airman who flew from England to Australia in his Gipsy Moth in 1929-30, has started upon another venture. This time, it is from New Zealand to Australia, via Norfolk Island and Lord Howe Island. Using the same Gipsy Moth, fitted with floats, he set out from Poremyrenga, North Island, N.Z., on March 28, and succeeded in reaching Norfolk Island safely after a 5-hr. flight. On March 30 he made several attempts to proceed to Lord Howe Island, but owing to bad weather had to postpone his departure.

Miss Reynolds' African Flight

The Times has received the following message from Miss Reynolds, who is at Bathurst, the Gambia, about her flight from England to the Cape via the West Coast of Africa:—On March 20 we made an excellent two hours' flight to McCarthy Island. While the aeroplane was moored there, a cutter, the native pilot of which was asleep, smashed the port elevator. The doped revets were received at Dakar on

March 24 and our machine was repaired. We completed a survey with Capt. Doke, the Commissioner, visiting Basse, Fatoto, and Kahur. It is possible to alight on any part of the river in the colony, and conditions here are ideal for all types of metal seaplanes. The temperature is 106° and humidity 85. We are forwarding to the Zoo a chieftain's gifts of valuable live stock. There were no difficulties with crocodile or hippopotamus in alighting, but when unpacking the float-case we found a black mamba (a deadly snake) in it, and bees swarmed in the cockpit overnight. We are awaiting a new elevator and making tests with a wooden airscrew.

"Graf Zeppelin"

THE German airship *Graf Zeppelin* made its first flight this year on March 27, with a cruise lasting 1½ hours, over the Lake Constance region. Next day the airship left Friedrichshafen and landed at Budapest next morning. After taking several passengers on board, including the Hungarian Minister of Defence, the airship made a cruise over Hungary, during which she encountered a heavy snowstorm, and landed again at Budapest in the afternoon, afterwards returning to Friedrichshafen.

An Air Force for Iraq

A FLIGHT of five Moths ("Gipsy II") and a Puss Moth ("Gipsy III") were due to leave the De Havilland Aerodrome at Hatfield, Herts, for Baghdad, on Wednesday, April 1. The Puss Moth has been built to the order of H.M. King Feisal of Iraq and the five Moths have been specially equipped with bomb carriers, wireless, and aerial cameras for light offensive and reconnaissance duties. These will form the nucleus of the Iraqi Air Force. Flight-Lieut. G. L. Carter has been loaned to the Government of Iraq for three years to form this Air Force, and will fly the Puss Moth, while the Moths will be flown by five Iraqi pilots who have been trained in this country.

Capt. C. D. Barnard's Air Tour of the British Isles

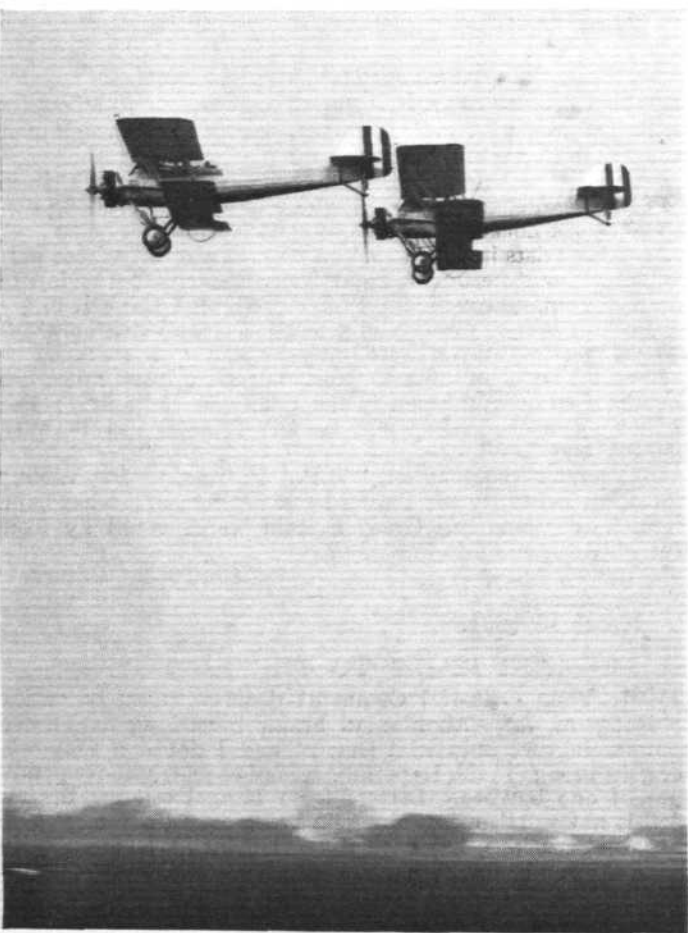
THE main object of Capt. Barnard in organising his tour is to assist in fostering public interest in the development of British flying. Not less than 150 of the more important towns will be visited, and at each of these an air pageant will be held. Capt. Barnard intends to meet the principal municipal officers of the various towns, and urge upon them the immediate necessity of reserving a site in their district for their future airport. He will also offer them the use of his machine for the purpose of making an examination of available sites from the airman's point of view.

A flying scholarship fund has been formed by Capt. Barnard, and in most of the districts visited a boy will be selected from the secondary schools and taught to fly at the nearest flying club without charge, up to 15 hours instruction.

The *Daily Mail* is providing an aviation lesson which demonstrates the reliability of British aircraft. The lesson will be carried out by means of a light aeroplane fitted with wireless telephone receiving apparatus, and lecture delivered through a transmitter and loud speaker equipment on the ground. The pilot will thus hear the lecture and act in unison with the lecturer. The public will be able to learn how and why an aeroplane flies and will be given an explanation of the evolutions and aerobatics which the pilot will perform. A demonstration will be given of the Autogiro in many parts of the country for the first time. The Cierva Autogiro Company have placed a machine of their latest improved type at the disposal of Capt. Barnard and it will be demonstrated every morning and afternoon. In addition, the public will have their first opportunity of taking flights in the autogiro. Capt. Barnard has secured the services of Mr. John Trantum, who will demonstrate the "Irvin" parachute. This is not presented as a daring stunt with the life of a man at stake, but as a demonstration of a safe and properly-regulated jump with an approved type of parachute.

The Accident to the S. 64

THE Italian Air Attaché in London, Lieut.-Col. P. F. Bitossi, has sent us a translation of the official report of the Commission of Inquiry into the accident to the Italian S.64 I-SAAT machine on which Commandant Maddalena, Capt. Cecconi and Eng.-Lieut. da Monte lost their lives on March 19. According to the report, the bits of wreckage were so scattered that it was impossible to arrive at any definite conclusion as to the cause of the accident, but the theory is advanced,



OFF TO IRELAND: Two Vickers "Vespas" with "Jaguar" engines left Weybridge at 12 noon on March 31 and arrived at Sealand at 1 o'clock, having made the journey in exactly one hour. The machines, which are part of an order for the Irish Free State, were piloted by Mr. J. Summers and Captain T. Neville Stack. (Flight Photo.)

as fitting in with the observed breakages, etc., that the crankshaft of the engine may have broken first, thereby causing the propeller to hit certain parts of the aircraft. This theory is supported by several peculiarities of the wreckage, among them being the finding, behind the pilot's seat, of Commandant Maddalena's coat, folded up, but showing sharp cuts such as might have been made by the sharp propeller blades hitting it. The report, which is signed by General Crocco and Lieut.-Cols. Biondi and Guidi, points out that, although broken crankshafts are now a rare occurrence, the possibility of breakage cannot yet be regarded as entirely eliminated.

Italian Royal Air Force Celebration

At the celebration on March 28 of the eighth anniversary of the foundation of the Italian Royal Air Force, in Rome, the Duke of Apulia received a silver medal from Signor Mussolini for his services during the recent Libyan campaign, and General Balbo a gold medal for his transatlantic flight, while the widow of Col. Maddalena received her husband's decoration.

An Air Born Baby

A REPORT from Le Pas, Manitoba, states that a baby boy was born on March 31 in an aeroplane at an altitude of 4,000 ft. The machine, in response to an emergency call, was conveying the mother to hospital, and the baby was born en route. Mother and baby reached Le Pas safely and are said to be "both doing well."

Flying Laboratories

It has now become permissible to refer briefly to some interesting experimental aeroplanes constructed some time ago by George Parnall & Co. at their works at Yate, Gloucestershire, to the order of the Air Ministry. The experimental machines are parasol monoplanes in which the wings are so attached to the fuselage that a certain amount of relative movement is permitted, this movement making it possible to evaluate, from dynamometer readings taken during flight, the air forces acting on the wings. The object of the experimental Parnall machines is to get full-scale results in actual flight, and a necessary part of the equipment is, therefore, a hydraulic brake, by means of which the engine can be stopped, the dynamometer readings having, of course, to be taken during gliding flight. Already a number of flights have been made, and results so far indicate that these machines should form a very valuable addition to wind-tunnel research. The experimental monoplanes are fitted with Armstrong Siddeley "Lynx" supercharged engines, and have a wing span of about 42 ft., while the loaded weight is 2,870 lb.

The A.I.D. Annual Dinner

THE Aeronautical Inspection Directorate Technical Staff Association is holding its sixth annual dinner this year on Friday, May 1, at the King's Hall, Holborn Restaurant. These dinners are always thoroughly enjoyable affairs, and this year, for the first time, H.R.H. The Duke of York has honoured the A.I.D.T.S.A. by accepting an invitation to be present. A strictly limited number of tickets are available for those connected with the aircraft industry, and it is desirable that early application should be made to Mr. J. Jarvis, A.I.D., Room 749, Alexandra House, Kingsway, London, W.C.2. The price of tickets is 10s. 6d. each. The

time is 6.30 p.m. for 7.15, and informal dress (lounge suits) is worn.

The Circuit of France

No less than 39 light 'planes have been entered for the Circuit of France for Touring Aeroplanes, to be held this summer. The closing date for entries was March 11, by which date the following machines had been entered: 9 Caudron type 230-32; 8 Farman type 230-34; 7 Potez type 36; 5 Moths; 2 Farman type 190; 1 Mauboussin; 1 Lorraine-Hanriot; 1 Potez type VIII; 1 Schreck; 1 Caudron type 109; 1 Caudron type 128; 1 Guerschais; 1 Morane type 137.

Sir Sefton Brancker's Diary

CAPTAIN LAURENCE PRITCHARD is editing the diary and memoirs of the late Air Vice-Marshal Sir W. Sefton Brancker, and as it is desired to make the most popular Director of Civil Aviation we have ever had live again in his book, Captain Pritchard would welcome any items of interest about Sir Sefton Brancker which any FLIGHT readers may come across. Stories told by or of Sir Sefton should be legion, and a number of them should be suitable for inclusion in the book which Captain Pritchard is preparing. Only with the help of many people can the editor of his diary hope to do justice to Brancker and his memory, so will readers please do all they can to help? Communications should be sent to Captain J. Laurence Pritchard, Royal Aeronautical Society, 7, Albemarle Street, London, W.1, and *not* to the editor of FLIGHT.

The Curtiss Aeroplane's New Home

THE Curtiss Aeroplane and Motor Co., which until recently has been situated at Garden City, Long Island, New York, has now moved its plant to Buffalo, and the new address will be The Curtiss Airplane and Motor Co. Inc., Kenmore and Vulcan Streets, Buffalo, New York.

Brian Lewis and C. D. Barnard, Ltd., Expansion

BRIAN LEWIS AND C. D. BARNARD, LTD., aircraft specialists, of 30, Conduit Street, London, W.1, and Heston Air Park, announce that they have opened another branch of their business at Hooton Park Aerodrome, Cheshire, just across the Mersey from Liverpool, for supplying new and secondhand aeroplanes of all types, also for taxi work and the hire of machines.

A stock of both new and secondhand aeroplanes is on view in the company's showroom hangar there, and the manager of this branch, Mr. W. Gairdner, will be pleased to give demonstration flights to prospective customers or to answer any queries in connection with the supply of aeroplanes.

An important part of this firm's activities is concerned with the sale of aeroplanes by deferred payments, which can be arranged either on new or secondhand machines. Part exchanges are also undertaken.

"Tycos" Aviation Instruments

THE well-known scientific instrument makers, Short & Mason, Limited, have recently issued a most interesting catalogue giving particulars of all their "Tycos" aviation instruments. The catalogue is printed in English, French, and Spanish, and the text explains shortly, but concisely, the main features of each of the many aviation instruments handled by this firm. We understand that copies of the catalogue can be obtained by anyone seriously interested who applies in writing to Short & Mason, Limited, "Aneroid Works," Walthamstow, London, E.17.



A CZECHOSLOVAK MILITARY BIPLANE: The S.316 which is fitted with a "Praga Es" 550-h.p. engine.

INTER-SERVICES RUGBY FOOTBALL

Royal Air Force v. Army

THE Royal Air Force beat the Army, handsomely, at Twickenham, on Saturday, March 28, by two goals and two tries (16 points) to one goal (five points). The Navy had already beaten both the other Services and had deservedly won the championship, so this might be described as a wooden spoon match.

This very rollicking and cheery game was first and foremost a personal triumph for Pilot Officer P. B. Coote, of No. 43 Fighter Squadron, who played left centre three-quarter for the Air Force. Seldom has a Twickenham crowd seen such a remarkable display of breaking through the serried ranks of foes as was given by this very powerful runner. He simply declined to run out towards his wing. When he got the ball he almost invariably looked about for where the red jerseys did most thickly congregate, and then went straight for the midst of them. He seemed to find progress easier that way. He ought to have been tackled dozens of times on each of his runs, and the Army defence was by no means despicable. Man after man would get his arms round Coote's middle, but a wriggle of the powerful hips would shake the runner free, and time and again he would emerge unchecked with nearly all his opponents behind him. Had he been less successful, he would deserve blame for having neglected to make more openings for the rest of his three-quarter line. Robinson was almost starved, and Hodder several times seemed well placed for a pass which Coote declined to give him. But as this unusual running by Coote usually put the Air Force in an attacking position, it must be admitted that nothing succeeds like success. Hodder, too, had one very brilliant patch, in which he was mainly responsible for two R.A.F. tries.

A somewhat similar game was played by the two centre three-quarters of the Army. Time and again the Air Force line was endangered by forceful dashes down the centre by either Beatty-Pownall or Rice-Evans. Beatty-Pownall deputised as fly-half after Fenton had been hurt. But these two players became dangerous when one of them spied an opening of sorts in the Air Force defence, and used his weight and dash to enlarge it. Coote scorned such tactics. Through the thick of the Army forwards was the path for him. When he gets a "Fury," will he, we wonder, always want to ram the enemy, or will he condescend to aerobatics?

None of the four wing three-quarters had any chance to distinguish himself. The half-backs on both sides rightly played up to their thrustful centre three-quarters. All worked hard—no half-back can ever avoid doing that—but, excepting Beatty-Pownall, they seldom tried to shine in attack themselves. McCreight, the Army scrum half, sometimes tried to be wily, and sometimes only showed himself too wily. After the opening score, he seldom gave much trouble to the R.A.F. defence. It is not always that half-backs remember the principle that when your three-quarters are on their day it is your duty to subordinate yourself to them.

Of the full backs, Ievers had a good day and Hunt a very good day. Several times the bounce of the ball, and more than once ill-judged play by those in front of him, put Ievers in difficult positions, from which perhaps only a Drysdale could have emerged with absolute credit. But Ievers was not to be blamed for getting into those positions, and he made no actual blunders. He was always sound. But as he can kick the ball a very fair length, he ought to gain more ground before he sends it across the touchline. Practice would surely improve that part of his game. Hunt was really brilliant, and helped his side a great deal. He had a lot more to do than fell to the lot of Ievers. There was one very dramatic moment when Beamish almost tackled Hunt with the ball. The two Irish internationals had a brilliant momentary duel, but Hunt got safely out of the clutches of his compatriot, and cleared.

The forwards on both sides had a rare dashing game, and both sides seemed to enjoy it thoroughly. The pace was a fast one, and they kept it going right up to the end. Their play was not always scientifically skilful. Not a few times the ball went loose while forward after forward on both sides dashed at it and tried to pick it up, or to dribble it, or to fly kick it, and man after man missed it. Their keenness and the pace of the game was too much for cold-blooded accuracy. But their élan left nothing to be desired.

Twickenham bore rather a forlorn appearance with the West grand stand half pulled down. It is to be rebuilt as a double-decker. Also there was no scoring board visible. But the day was dry and fine, and the turf was in first-class

condition. The game was not many minutes old when the Army got a try, touched down by Troop, and the goal was kicked. This roused the Air Force to a fine pitch of fury. They swept on to the Army lines and kept up a pressure for several minutes, with the result that F./O. Williams forced his way over for a try. Simmons missed the kick, so the Army remained ahead, but the Air Force had got their tails up and were in scoring mood. Hunt once cleared well with a screw kick while facing his own goal, but a few seconds later the ball went out to Coote. He made the first of his notable runs by swerving inwards towards the centre and breaking through a number of defenders. When he could go no further he passed to Hodder, who forced his way through and scored. Coote converted, and the Air Force led by three points.

The next incident was a cool save by Ievers. Then there was a loose maul, from which Hodder broke away cleverly and got up to Hunt. Then he gave a simple pass to Coote, who had backed up well, and the latter went over between the posts. There was no excuse for Coote missing this kick, but he missed it. Still the Air Force had a comfortable lead.

The Air Force messed things up a bit by injudicious passing back, and the Army got near their line. There was a good deal of fumbling on both sides, and then a free kick to the Air Force cleared their lines. A series of three free kicks to the Army kept the Air Force at a respectable distance for a while, and at this time the Army got the ball in most of the scrums. Then the Air Force made a raid, but Daunt fumbled a difficult pass and then kicked the ball dead behind the Army lines. There was no more scoring before half time.

R.A.F., 11; Army, 5.

Early in the second half Coote put in two more remarkable runs, going through most of the Army team. Then the Army got back, and Fenton tried to drop a goal, and the Air Force touched down. Elsmie got off-side about the half-way line, and Hunt made a really wonderful attempt to bring off a penalty goal, which would have done credit to Black. Then Coote had another run right through the red, and passed to Robinson, but the latter was outpaced and was tackled. Bader made a not very creditable attempt to drop a goal, and soon after Constantine was conspicuous with a good dribble by himself.

There was a thrilling moment when Beatty-Pownall made an opening and after a long run kicked over the line. Hodder just won an exciting race for the touch down. Again the ball went over the Air Force line and went dead. In the kick-off, Coote just touched the ball with his toe, picked it up, and commenced to run. As usual, he came into the centre, and barged his way through a lot of men. An Air Force attack followed, and a good passing movement from Coote to Wallace to Bader took the ball to near the Army line. The Air Force attack was kept up, the forwards putting in a good combined dribble, and Hodder and Williams in turn distinguishing themselves. At last the reward came in a try by Constantine, which was converted. Soon after the whistle blew, leaving the R.A.F. in possession of a very well deserved victory.

F. A. de V. R.

The teams were:—

The Army.—2nd Lt. E. W. F. de V. Hunt (Royal Artillery); Pte. E. Bentley (1st Bn. Duke of Wellington's Regt.), Lt. C. C. Beatty-Pownall (2nd Bn. Leicestershire Regt.), Lt. J. A. Rice-Evans (2nd Bn. Royal Welch Fusiliers), Lt. A. G. Martin (South Wales Borderers); 2nd Lt. G. G. J. Fenton (Royal Artillery) and 2nd Lt. C. C. McCreight (Royal Artillery); 2nd Lt. H. Rew (5th Bn. Royal Tank Corps), Lt. H. H. C. Withers (Royal Engineers), 2nd Lt. C. L. Troop (1st Bn. Duke of Wellington's Regt.), 2nd Lt. R. G. S. Hobbs (Royal Artillery) Pte. G. W. Annesley (1st Bn. Duke of Wellington's Regt.), Lce.-Cpl. E. H. Sadler (Royal Corps of Signals), 2nd Lt. B. W. Reynolds (1st Bn. Duke of Wellington's Regt.), 2nd Lt. G. Taylor (1st Bn. West Yorkshire Regt.).

Royal Air Force.—P./O. G. M. Ievers (58 B.S., Worthy Down), back; P./O. N. Daunt (25 F.S., Hawkinge), Flt. Lt. F. S. Hodder (Henlow), P./O. P. B. Coote (43 F.S., Tangmere), L.A./C. P. Robinson (101 B.S., Andover), three-quarters; P./O. D. S. R. Bader (23 F.S., Kenley), G. R. A. Elsmie, (43 F.S., Tangmere), halves; P./O. R. L. Wallace (17 F.S., Upavon), L.A./C. W. Reynolds (Henlow), L.A./C. A. E. Simmons (Henlow), F./O. H. G. Constantine (Cranwell), F./O. G. E. S. Williams (58 B.S., Worthy Down), P./O. T. N. Coslett (2 A.C.S., Manston), Flt. Lt. G. R. Beamish (Henlow), Corpl. M. G. Christie (503 B.S., Waddington), forwards.

THE ROYAL AIR FORCE

London Gazette, March 24, 1931.

General Duties Branch

Squadron Leader F. G. Stammers, O.B.E., is appointed Provost Marshal and Chief of Air Force Police, vice Wing Commander W. J. Ryan, C.B.E. (March 16). The following Pilot Officers are promoted to rank of Flying Officer (Jan. 27):—**M. L. Heath, W. S. Hebden, D. W. Lane, R. C. Mead, R. L. Phillips, F. W. Stannard**; (Feb. 15), **R. B. Abraham, M. J. Adam**; (Feb. 16), **J. C. Atkins** (with seniority of Feb. 15).

Wing Commander **B. L. Huskisson, D.S.O.**, is placed on half-pay list, Dec. 4, 1930, to Dec. 18, 1930, inclusive (scale A), and Dec. 19, 1930, to Jan. 9, 1931, inclusive (scale B). Flight Lt. **G. L. Carter** is seconded for duty under the Iraq Government (March 1).

Wing Commander **W. J. Ryan, C.B.E.**, is placed on retired list at his own request (March 16). Flying Officer **H. B. Maugham** is placed on retired list on account of ill-health (March 25). Flying Officer **F. F. Barrett** is transferred to Reserve, Class C (Sept. 30, 1930) (substituted for *Gazette*, Sept. 30, 1930). Pilot Officer on probation **E. D. Redgment** relinquishes his short service comm. on account of ill-health (March 25). Pilot Officer on probation **P. A. Smith** is dismissed the Service by sentence of General Court-martial (March 16).

Medical Branch.

Flight Lt. **C. W. Coffey, L.R.C.P. and S.**, is granted a permanent comm. in this rank (March 25).

Chaplains' Branch

The Rev. **P. C. C. Lamb, M.A.**, is placed on retired list on account of ill-health (March 19).

RESERVE OF AIR FORCE OFFICERS

General Duties Branch

Flying Officer **G. W. P. Irwin** is transferred from Class A to Class C (Jan. 14); Flying Officer **A. M. Butt** is transferred from Class C to Class A (Jan. 16). Pilot Officer on probation **J. H. C. Beard** is transferred from Class AA (ii) to Class C (March 13). The following relinquish their comm. on completion of service:—Flight Lieutenant **J. H. Page** (Nov. 8, 1930); Flying Officers **G. W. C. Ravenhill** (Sept. 12, 1930), **F. Beesley** (Nov. 2, 1930), **R. J. Copley** (Dec. 19, 1930), **G. E. F. Boyes** (March 13).

AUXILIARY AIR FORCE

General Duties Branch

No. 603 (CITY OF EDINBURGH) (BOMBER) SQUADRON.—Flying Officer **L. J. Blake** resigns his comm. (March 9).

ROYAL AIR FORCE INTELLIGENCE

Appointments.—The following appointments in the Royal Air Force are notified:—

General Duties Branch

Squadron Leaders: **M. B. Frew, D.S.O., M.C., A.F.C.**, to H.Q., Iraq Command, Hinaidi; 10.3.31. **C. F. Gordon, O.B.E., M.C., D.F.C.**, to School of Balloon Training, Rolleston Camp; 12.3.31. **J. W. Woodhouse, D.S.O., M.C.**, to R.A.F. Depot Uxbridge; 17.2.31. **A. C. Bayley** to Air Ministry (D.O.I.); 23.3.31.

Flight Lieutenants: **W. M. Fry, M.C., W. A. Tattersall**, both to R.A.F. Depot, Aboukir; 10.3.31. **C. J. W. Hatcher, A.F.C., J. F. T. Barrett, D.S.O., D.F.C.**, both to No. 1 Armoured Car Company, Hinaidi; 10.3.31. **J. M. Glaisher, D.F.C.**, to No. 70 Sqn., Hinaidi; 10.3.31. **R. Grice, D.F.C.**, to H.Q., R.A.F., Middle East, Cairo; 10.3.31. **W. J. Richards, J. W. Bell, D.S.M.**, both to Aircraft Depot, Hinaidi; 10.3.31. **C. Walker**, to H.Q., Aden Command; 10.3.31. **A. G. Thackray, R. J. A. Ford**, both to No. 2 Armoured Car Company, Ramleh; 10.3.31. **C. B. R. Pelly, C. R. Mason**, both to H.Q., Iraq Command, Hinaidi; 10.3.31. **E. D. Mac L. Hopkins**, to R.A.F. Practice Camp, Sutton Bridge; 10.3.31. **H. D. Spreckley**, to Aeroplane and Armament Experimental Estab., Martlesham Heath; 9.3.31. **A. C. Stevens**, to No. 210 Sqn., Felixstowe; 2.3.31. **D. S. Allan**, to No. 1 Sch. of Technical Training (Apprentices), Halton; 21.1.31. **E. H. M. David**, to R.A.F. Base, Gosport; 11.3.31. **V. P. Feather**, to No. 500 Sqn., Manston; 16.3.31. **C. N. Ellen, D.F.C.**, to No. 26 Sqn., Catterick; 23.3.31. **L. Darvall, M.C.**, to R.A.F. Depot, Uxbridge; 2.2.31. **M. H. Ely**, to R.A.F. Depot, Uxbridge; 4.2.31. **B. Cheesman, M.B.E.**, to Station Headquarters, Mount Batten; 19.3.31. **A. G. Pickering, A.F.C.**, to R.A.F. Base, Calshot; 18.3.31. **E. F. Waring, D.F.C.**, to No. 201 Sqn., Calshot; 9.2.31. **J. W. White**, to Air Ministry (D. of E.); 10.3.31. **C. H. Schofield**, to School of Army Co-operation, Old Sarum; 14.3.31. **C. S. Cadell**, to R.A.F. Depot, Uxbridge; 1.3.31.

Flying Officers: **M. N. Oxford**, to No. 30 Sqn., Mosul; 10.3.31. **L. P. Rowley**, to No. 4 Flying Training Sch., Abu Sueir; 10.3.31. **J. E. Loverseed**, to No. 6 Sqn., Ismailia; 10.3.31. **H. S. Martin**, to Electrical and Wireless Sch., Cranwell; 6.3.31. **J. E. Allen**, to No. 500 Sqn., Manston; 16.3.31.

IN PARLIAMENT

National Flying Services, Limited

Mr. MONTAGUE, on March 24, in reply to **Mr. Everard**, said National Flying Services, Ltd., have directly or indirectly arranged for the provision of six aerodromes since the date (August 1, 1929) from which their agreement with the Air Ministry commenced to operate; these aerodromes are situated at Blackpool, Hanworth, Hull, Nottingham, Reading and Stoke. In addition the company indirectly maintain an aerodrome at Sherburn-in-Elmet which was in existence prior to the agreement. The company have inspected 106 sites for landing grounds with a view to the selection of the 80 which they are required, under the agreement, to provide within three years, but none of these has as yet been finally selected and licensed.

Schneider Trophy Race

Mr. MONTAGUE, on March 25, in reply to **Lt.-Com. Kenworthy**, said it is hoped that the whole of the extra expenditure will be covered by private contribution. It would not be expedient to make public the amount of expenditure on the purchase and reconditioning of technical equipment for the race. I have no doubt that in due course it will be possible to come to some commonsense arrangement as to the ultimate disposal of this equipment.

Lt.-Com. Kenworthy: If these aeroplanes are to be kept by the Air Ministry for a certain period for training purposes, will Lady Houston be allowed some part of the cost for the hire of them?

Mr. Montague: All I can say upon that matter is that, if we think it necessary to retain these machines permanently, the Air Ministry will consider the question of some rebate on the cost.

Airships

Mr. MONTAGUE, on March 25, in reply to **Sir N. Grattan-Doyle**, said since February 11, 42 industrial employees (seven men and 35 women) have been discharged from the Royal Airship Works, Cardington, and notices of discharge have been issued to 26 other men. As regards abandoning airship development, no decision will be reached on this matter until the report of the R 101 Inquiry has been received and considered in all its bearings.

R.A.F. SPORT

Association Football Tournament.

R.A.F. v. the Army.—The Army and the R.A.F. drew (2 goals all) in the first match of the Inter-Services Tournament, which was played at Upton Park on Saturday, March 21. The Army were the first to score, but then the defence of the R.A.F. backs and Chaston in goal became the outstanding feature of the match. The R.A.F. forwards were less convincing, but before half time Whitehead scored an equalising goal. In the second half A./C. Parrish collided with Pte. Winfield, and both had to

leave the ground. Near the end, the Army went ahead with a goal by Doggrell, but the R.A.F. forwards then improved and Vernon brought the scores level again with the best goal of the match. The teams were:—

The Army.—Gunner **E. Duckworth (R.H.A.)**; Bombardier **W. Roberts (R.A.)**, Pte. **F. Winfield (Ox. and Bucks L.I.)**; Lance-Cpl. **E. D. Gerrard (Roy. Tank Corps)**, Cpl. **S. Vidler (Hants Regt.)**; Lt. **T. M. R. Briggs (R.A.S.C.)**, Pte. **W. J. Izzard (Roy. Tanks Corps)**, Lt. **D. Doggrell (Wilts Regt.)**, Pte. **A. A. Wallace (R.A.S.C.)**, Bombardier **A. Westmoreland (R.A.)**, Pte. **J. Appleby (Beds and Herts Regt.)**.

Royal Air Force.—A.-C. **Chaston (Uxbridge)**; Cpl. **Pond (Henlow)**, Sgt. **James (Bicester)**; Cpl. **Baldwin (West Drayton)**, Cpt. **Robinson (Henlow)**, A.C. **Bulmer (Lee-on-Solent)**; A.C. **Parrish (Kenley)**, Education Officer **C. H. Sleightholme (Mountbatten)**, L.A.C. **Vernon (Halton)**, L.A.C. **Whitehead (Henlow)**, A.-C. **Hickey (Uxbridge)**.

R.A.F. v. R.N. and R.M.—The Air Force and the Navy drew love all in the Inter-Services Soccer Tournament at Fulham on Saturday, March 28. Corpl. **Robinson**, of Henlow, the international centre half-back, was injured before half-time, and had to leave the field, while Sleightholme was also hurt and almost incapacitated. Hickey was moved from left wing forward to centre half, and played very well in his new place. The R.A.F. put up a magnificent defence, and the two backs, Corpl. **Pond** and Sgt. **James**, covered themselves with credit. The R.A.F. had previously drawn with the Army, so the championship will depend on the Army v. Navy match on April 11. The teams were:—

Royal Navy and Royal Marines.—Marine **D. Renour (Eastney)**, Marine **F. Powell (Devonport)**, Sgt. **F. Lyon (H.M.S. St. Vincent)**, Pay-Lt. **Cmdr. C. E. Glemister (H.M.S. Erebus)**, E.R.A. **J. Betts (H.M.S. Victory)**, Marine **A. Woods (Chatham)**, A.B. **J. Demmellweek (H.M.S. Vivid)**, Rigger **H. L. Coates (H.M. Yacht)**, O.S. **C. Breeze (H.M.S. Dolphin)**, A.B. **T. Burn (H.M.S. Victory)**, L.S.B.A. **C. Chapman (H.M.S. Victory)**.

Royal Air Force.—A.-C. **Chaston (Uxbridge)**, Corpl. **Pond (Henlow)**, Sgt. **James (Bicester)**, Corpl. **Baldwin (West Drayton)**, Corpl. **Robinson (Henlow)**, A.C. **Bulmer (Lee-on-Solent)**, A.C. **Parrish (Kenley)**, Education Officer, **C. H. Sleightholme (Mountbatten)**, L.A.C. **Vernon (Halton)**, L.A.C. **Whitehead (Henlow)**, A. C. **Hickey (Uxbridge)**.

No. 40 (Bomber) Squadron Forming

No. 40 (Bomber) Squadron will form at Upper Heyford on April 1, 1931. This unit will be equipped with Gordon aircraft (Fairly IIIIF with Panther engine).

Formation of Nos. 465 and 466 (Torpedo Bomber) Flights (F.A.A.)

Nos. 465 and 466 (T.B. Flights will form at Gosport on March 20 and 31 1931, respectively, and will be equipped with Ripon aircraft.

AIR POST STAMPS

By DOUGLAS ARMSTRONG

THE cult of air-post collecting is little more than ten years old, yet within that decade, the values of the scarcer varieties of stamps and covers associated with epoch-making flights have risen in the collectors' market by leaps and bounds. In the auction room, new high records are being created, almost from month to month, and in all probability, the day is not far distant, when four figures will be bid for a single air-rarity.

New Records for Trans-Atlantic Rarities

Some remarkable prices were realised by the more elusive air mail stamps of Newfoundland at Harmer's Bond Street auction rooms the other day, when half-a-dozen lots were run up to £524. The highest single bid was £225 for a superb mint copy of the "De Pinedo" air-mail stamp of 1927—an advance of a hundred and fifty pounds upon the last specimen that came under the hammer two years ago. The potential rarity of this stamp, of which no more than forty-two exist unused, is at last coming to be appreciated by aerophilatelists, and there is little doubt that in the near future it will outstrip the historic "Hawker" stamp in the race for philatelic value. It is the more interesting to recall therefore that a mint block of four sold for only £30 a stamp as recently as the year in which it was issued. An aerial letter flown from Trepassy to Rome and franked with the same stamp, went for the comparatively modest sum of £42.

The first examples of the "Columbia" air mail stamp of September, 1930, to be offered at auction in London, made £75 for the unused copy and £64 for the flown cover. The former price was perhaps about 25 per cent. under the actual market value, but this is accounted for by the fact that the particular specimen was somewhat "off-centre" and therefore less calculated to appeal to the really discriminating collector. The "cover," however, was a first-class item and worth a trifle more than it fetched. By contrast a letter carried on the same flight, but prepaid in ordinary postage stamps of Newfoundland, hung fire badly, and was eventually knocked down for a mere five-pound note; an indication of the present trend of aero-philately.

Another notable realisation was £70 for an "Alcock" cover, carried on the first successful Trans-Atlantic flight in June, 1919, and having in addition to the St. John's, Newfoundland postmark the uncommon barred cancellation on the \$1 surcharged stamp itself. In February, 1929, a similar item was sold in the same auction room for £32, and the highest figure previously recorded is in the neighbourhood of £45. This is another instance of an historical relic that is steadily appreciating in value.

Last, but not least, in this important sale, was a mint copy of the scarce "inverted" overprint on the abortive Halifax air mail stamp of 1921 which finally realised £43—a good price though slightly under "catalogue."

Unauthorised Air Stamps bring £120

A curious instance of a repudiated air stamp issue being restored to favour and keenly sought after by collectors by whom it had once been eschewed is afforded by the sale by Harmer, Rooke & Co. Ltd., of a set of five letters and cards bearing the unauthorised Raynham-Morgan-Martinsyde 1st Atlantic Air Post overprint. This was a purely private effort on the part of the aviators concerned in conjunction with a certain newspaper correspondent, since deceased, and as soon as the existence of this unofficial air stamp issue became known, it was at once disavowed by the Postmaster-General of Newfoundland. Owing to the failure of the Martinsyde machine to take-off from St. John's in the attempt for the *Daily Mail* trophy, the dozen or so letters and post-cards thus distinguished, reached England in due course by ordinary post, and then seem to have disappeared almost completely. To-day, they are in strong demand by collectors of Trans-Atlantic air post souvenirs, notwithstanding their lack of credentials, these being the only examples that have been on the market for some time past. One of the covers was especially interesting in that it bore a complete set of the overprinted stamps, comprising 1c. green, 2c. carmine, 3c. brown and 24c. bistre, all in the "Caribou" type of 1919, whilst the post-card is one of three known.

S.W. Africa puts "on" "Airs"

Now that two definitive air mail stamps have been provided for use in the South-West African service, it is possible to review the history of the much-boosted emergency overprints on the present Union issue. The first supply delivered by the Government Printer at Pretoria in November last, consisted, it seems, of 6,000 4d. and 1,200 1s. air stamps with the initials "S.W.A." overprinted in small black

capitals. This was followed by a further printing of 3,000 in each denomination, bringing the grand total up to 9,000 and 4,200 respectively. The 1s. was the first to appear with the larger S.W.A. imprint in December, to the tune of 3,000 copies, but the exact number of the 4d. value to receive the enlarged overprint has not yet been disclosed, although it is reputed to be very small. In the circumstances it would appear that the large overprint is even better than the over-rated small type.

The 3d. and 10d. air mail stamps which form part of the picturesque permanent stamp series introduced into the territory on March 5, are exceedingly handsome vignettes showing, respectively, a monoplane (3d. blue and brown), and a bi-plane (10d. brown and black) over aerial views of Windhoek, the seat of administration.

Sudan's Air Mail Provisionals

Coincident with the opening of the latest Imperial air-line linking London with Central Africa by way of Egypt and the Sudan, special stamps were put on sale by the Sudanese post-office, for use on letters transmitted over this route in the form of contemporary postage stamps of 10 millimes and 2 piastres face value respectively with the inscription "AIR MAIL" apposed in bold, black sans-serif capitals. These are to be followed in due course by air stamps of definitive design.

PUBLICATIONS RECEIVED

Patents, Trade Marks and Designs. By H. T. P. Gee. Gee and Co., Staple House, 51-52, Chancery Lane, London. W.C.2. Price 5s.

The Air Pilot (Volume I) Monthly Supplement. No. 17. January, 1931. H.M. Stationery Office, Kingsway, W.C.2. Price 6d. net.

Twixt Lombard Street and Cornhill: 1677. Designed, Written, and Illustrated by the Staff of Lloyds Bank, Ltd., 71, Lombard Street, London, E.C.3.

Report on the Economic Situation in the French Zone of Morocco during 1929 and the first Nine Months of 1930. No. C.3461. Department of Overseas Trade, 35, Old Queen Street, London, S.W.1.

NEW COMPANY REGISTERED

BROOKLANDS SCHOOL OF FLYING, LTD., Brooklands Aerodrome, Byfleet, Surrey.—Capital £100, in £1 shares. Instructors in aviation, aerial navigation and aerial and ground signalling; dealers in and importers and exporters of aircraft and aircraft engines of all kinds, etc. Directors: H. D. Davis, Weyside Cottage, Weybridge Road, Byfleet; E. A. Jones, 6, Dawson Road, Byfleet (managing director and director respectively of Brooklands Aviation, Ltd.).

AERONAUTICAL PATENT SPECIFICATIONS

(Abbreviations: Cyl. = cylinder; i.c. = internal combustion; m. = motors. The numbers in brackets are those under which the Specification will be printed and abridged, etc.)

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Published April 2, 1931

36,318. INDIA RUBBER, GUTTA PERCHA & TELEGRAPH WORKS Co., Ltd., and W. L. AVERY. Undercarriages for aircraft. (344,441).

APPLIED FOR IN 1930

Published April 2, 1931.

5,930. W. MESSERSCHMITT. Flying machines. (344,642.)

6,771. C. A. A. FAUVEL. Aeroplanes. (344,653.)

12,294. LUFTSCHIFFBAU ZEPPELIN GES. Construction of girders for light structures such as airships. (344,699.)

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